EXHIBIT B29

UNITED STATES DISTRICT COURT

DISTRICT OF NEW JERSEY

IN RE JOHNSON & JOHNSON TALCUM POWDER PRODUCTS MARKETING SALES PRACTICES, AND PRODUCTS LIABILITY LITIGATION	) MDL No. 16-2738 (FLW)(LHG)
THIS DOCUMENT RELATES TO ALL CASES	)

VIDEOTAPED DEPOSITION OF

JACK SIEMIATYCKI, Ph.D.

MONTREAL, CANADA

THURSDAY, JANUARY 31, 2019

9:49 A.M.

Reported by: Leslie A. Todd

Deposition of JACK SIEMIATYCKI, Ph.D., held at the offices of:

CHUM Research Center
Montreal, Canada

Pursuant to notice, before Leslie Anne Todd, Court Reporter and Notary Public in and for the District of Columbia, who officiated in administering the oath to the witness.

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EXHIBITS (Continued)

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PROCEEDINGS

THE VIDEOGRAPHER: Good morning. We're now on the record. My name is Fabio DeFelice. I'm the videographer for Golkow Litigation Services. Today's date is January 31st of 2019. The time is 9:49 a.m.

This video deposition is being held at the CHUM Research Center in Montreal, Canada, in the matter In Re: Johnson & Johnson Talcum Powder Products in the United States District Court for the Eastern District of New Jersey. The case number is 16-2738.

The deponent is Jack Siemiatycki, Ph.D.

The counsel will be noted on the stenographic record. The court reporter is Leslie Todd, and will now swear in the witness.

JACK SIEMIATYCKI, Ph.D.,

and having been first duly sworn,

was examined and testified as follows:

DIRECT EXAMINATION

BY MS. BRANSCOME:

Q Good morning, Dr. Siemiatycki.

A Good morning. Nice to meet you.

Q We met just before the deposition

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started, but my name is Kimberly Branscome, and I am here to ask you questions today on behalf of Johnson & Johnson.

Is that all right?

A Thank you. Yes.

Q All right. We are taking your deposition today in the case of In Re: Johnson & Johnson Talc Litigation, MDL.

Is it your understanding that you have been designated as a testifying expert in that case?

A Yes.

Q When were you first contacted about serving as an expert witness in the MDL litigation?

A I believe it was in the spring or summer of 2018, but I'm not positive about that.

Q Who contacted you?

A Ms. Parfitt.

Q Have you communicated with any other lawyers regarding your work on the talc MDL?

A I've had a couple of meetings with Ms. Parfitt and her colleagues that she works with.

Q Can you identify the individuals with

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whom you have met in addition to Ms. Parfitt?

A Yes, there are two, and they are here present. Chris Tisi and Alastair --

MR. FINDEIS: Findeis.

THE WITNESS: Say that again.

MS. PARFITT: Findeis.

THE WITNESS: And that's -- thank you.

BY MS. BRANSCOME:

Q How many meetings have you had to prepare for your expert opinions in the MDL?

A One yesterday and one about a month -- about three weeks ago.

Q Where did those meetings take place?

A Here.

Q And by "here," do you mean in Montreal?

A In Montreal, yes.

Q How long did each meeting last?

A Yesterday's was about four, five hours maybe. Four or five hours. And the earlier one, I guess all told, about ten hours maybe.

Q Did the ten-hour meeting take place over one day?

A Over two days.

Q In addition to the attorneys that you just identified for the record and yourself, was

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anyone else present at those meetings?

A No.

Q You didn't have anyone from your team, for example, present?

A No.

MS. PARFITT: Objection. Form.

BY MS. BRANSCOME:

Q What did you do to prepare for your deposition today?

A Do you mean from the beginning of my involvement in the MDL case back last summer or do you mean just in the last few days?

Q Let's take it more broadly.

What have you done to develop your opinions in this case, and then specifically to prepare for your deposition?

A I reviewed -- I rereviewed the literature about talc and ovarian cancer, scientific literature. I evaluated it, I wrote a report about it. And in the last few days, I went over all of the -- not all, but a lot of the material that I had gone through initially and just clarified for myself, looked for any issues that I had missed the first time around, things like that.

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Q As part of your review of materials in preparation for today, did you identify anything in your review that changed the opinions that you have offered in the expert report in the MDL?

A No. Those opinions remain valid.

Q When you say that you rereviewed the scientific literature in preparation for the development of your opinions in the MDL, what did you mean by "rereviewed"?

A Well, I had reviewed -- I've reviewed evidence around talc and ovarian cancer on a few different occasions. The first time was in 2006 when I was on an international review committee on the topic. Then in 2015, '16, '17, in preparation for another litigation regarding talc and ovarian cancer. Then in the summer/fall of 2018, in preparation for writing a report that was submitted for this case. And then in the last week or two, roughly speaking, I went over all of that. So I refer to that as a rereview.

Q Have you ever discussed your deposition with any of -- of the other experts designated by the plaintiffs in the MDL?

A No, I haven't.

Q Have you discussed your expert opinions

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with any of the other experts designated by the plaintiffs in the MDL?
A No, I haven't.
Q Are you aware of the list of experts that have been designated by the plaintiffs in the MDL?
A I'm aware of at least some of them. I'm not sure if I'm aware of all of them, but I'm aware of some of them.
Q Who specifically are you aware of?
A Singh, McTiernan, Laura Plunkett. And there are a few more, and I could look it up.
Q I'd like to start by just marking the deposition notice for your deposition as Exhibit 1.
Dr. Siemiatycki, you will see two large binders over there in front of you. This will be tab 1.
So I'd like --
A I see it.
Q I'd like to mark for identification the document behind tab 1, which is Dr. Siemiatycki's deposition notice as Exhibit 1 to this deposition.
MS. PARFITT: Do you want to give me --

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Do you want me to just mark them? Will that help you, instead of reaching across the table? It's up to you. I can put the stickers on it.
(A discussion was held off the record.)
(Exhibit No. 1 was marked for identification.)
BY MS. BRANSCOME:
Q Dr. Siemiatycki, are you familiar with the document that we have just marked as deposition Exhibit 1?
A I've seen something like this. I'm -- not reading through it, I'm not sure if it's exactly the same document that I have seen before, but I guess this is kind of the standard format of notice that is sent to experts ahead of time. So I've seen -- I've seen that.
Q Do you understand that what has been marked as Exhibit 1, which is the notice for your deposition, requests that you bring certain documents with you to this deposition?
A Yes.
Q All right. And just for completeness and at the request of plaintiffs' counsel, I will also mark as Exhibit 2 the general objections to

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your deposition that were submitted by plaintiffs' counsel in the MDL. And this one we actually will need to mark a copy, because it's not in your binder.
(Exhibit No. 2 was marked for identification.)
MS. BRANSCOME: Do you have an extra copy, Michelle?
MS. PARFITT: I do. Not a worry. I got it.
BY MS. BRANSCOME:
Q Dr. Siemiatycki, have you ever seen the document that has been marked as Exhibit 2, which is the plaintiffs' general objections to your deposition notice?
A I'm not sure.
MS. PARFITT: I will represent for the record that's not been provided to Dr. Siemiatycki.
BY MS. BRANSCOME:
Q All right. So if you could, Dr. Siemiatycki, did you bring any materials with you today to the deposition?
A Yes, I brought a lot of documents, just in case.

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Q Can you identify for me, and we can start with a general category first, if that's helpful, the materials that you brought with you today to your deposition?
A Well, I brought my report. I brought an addendum to my report, which I think has been provided to you.
MS. PARFITT: Yes, that was the table.
THE WITNESS: It's a long -- it's a set of --
MS. PARFITT: I have a copy of that if you wish to have it marked. Do you want it -- if you give me a number, I will put it on this one.
BY MS. BRANSCOME:
Q Let's see. Yeah, let's go ahead and mark the addendum to your expert report as Exhibit 3.
(Exhibit No. 3 was marked for identification.)
BY MS. BRANSCOME:
Q Dr. Siemiatycki, could you just confirm for the record that what we have marked as Exhibit 3 is in fact the complete addendum to your MDL expert report?
A I -- I believe it is. I believe it is.

Q What else did you bring with you today?
A I'm not sure if this is the right time to mention it, but there were a couple of -- in the past few days I picked up a couple of typos in my report, and I've hand scribbled them on my copy, and I can tell you about those very quickly, but I'm not sure if this is now the right time for this or later.
Q I will ask you about any corrections that you have, but it is good to know that the report you brought with you has some handwriting on it, so we will make sure to mark that copy.
A Okay.
Q What else did you bring with you today?
A I brought -- well, I brought three binders of material that were part of the -- the references to my report.
MS. PARFITT: And if I may, I provided counsel in advance of the deposition a thumb drive that contains all of Dr. Siemiatycki's report but also the references related to that report.
THE WITNESS: I brought a couple of binders -- well, more than a couple. It looks like five binders of different documents that I thought might be useful in answering questions

that you might ask. So it was -- I was just speculating on the types of questions you might ask and brought documents that might help to answer or to support arguments or statements that I would make. I brought five --
MS. PARFITT: You can get --
THE WITNESS: -- which --
MS. PARFITT: -- the texts --
THE WITNESS: The textbooks. I brought five books with me, again in the same spirit that things might come up that it would be helpful to refer to material in these books. One -- should I tell you what they are?
BY MS. BRANSCOME:
Q If you would, please, identify each of the books --
A Okay.
Q -- for the record, and we will return to the eight binders that you just mentioned.
A One is a book called Risk Factors for Cancer in the Workplace. And it's a book that I wrote 30 years ago about occupational causes of cancer.
The other one -- the next one is the monograph of IARC, which is the International

Agency for Research on Cancer, of the meeting held in Lyon in 2006. The book was published in 2010, and it contains an evaluation of talc carcinogenicity as of 2006.
The next one is a textbook of epidemiology that is probably considered the most respected one in the field at this point, authored by Rothman, T -- R-O-T-H-M-A-N, Greenland, G-R-E-E-N-L-A-N-D, and Lash, L-A-S-H.
MR. KLATT: Dr. Siemiatycki, is there a particular edition or is there --
THE WITNESS: Oh, yeah. Yeah, this one is third edition. Thank you.
The fourth one is kind of a handbook called Dictionary of Epidemiology, edited by Porta, P-O-R-T-A, which is kind of a very basic book of definitions.
And the fifth one is called An Introduction to Meta-Analysis. The first author is Borenstein, B-O-R-E-N-S-T-E-I-N.
BY MS. BRANSCOME:
Q All right. Focusing first on the books that you brought with you, why did you bring with you a book about Risk Factors --
A For cancer.

Q -- for Cancer in the Workplace?
A Because it has -- in that book I -- I described my research. I described the research findings from my projects in this area. I also described the process of conducting epidemiologic research and drawing inferences from epidemiologic data, and how -- what are the considerations that would be used in drawing inferences from epidemiologic data for cancer causation. And I thought this might come up during the day.
Q Do the methodological principles that you outline in your book, Risk Factors for Cancer in the Workplace, are those still current in your view today?
A Yes.
Q And why specifically did you want to have this book available to you during your deposition?
A In case any of the statements that I've made in my report about evaluating causation and how epidemiology is used for evaluating causation are challenged. And specifically, I was anticipating that there may be challenges to the fact that my approach to this question might be new and just sort of concocted in the context of

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the litigation, and I wanted to show that in my own sort of intellectual history, these ideas have been there forever but certainly for the last 30 years, and that these are commonly held views.

Q Are there specific chapters within the book that you brought with you that you would direct someone to to gain information about the methodology that you applied in the MDL?

MS. PARFITT: Objection. Form.

THE WITNESS: I'm sorry. Could you repeat the question?

BY MS. BRANSCOME:

Q Understanding that what you brought with you --

A Yes.

Q -- is a complete book --

A Yes.

Q -- are there specific chapters that you contend contain an explanation of the methodology that is similar to what you have applied in your analysis in the MDL?

MS. PARFITT: Objection. Form, broad.

THE WITNESS: So I would say there are two chapters that have relevance to the issue at hand. The last chapter contains a discussion of

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causality and how to use epidemiology in the process of determining causality.

The first -- the second chapter contains information -- excuse me, I think it's the second chapter -- contains information about different epidemiologic research designs, and it's a discussion of case-controlled studies, cohort studies, and other types of epidemiologic designs and their relative advantages and disadvantages.

BY MS. BRANSCOME:

Q Is there a description of the methodology that you have applied in your analysis in the MDL that is directly described in the book that you just referenced?

MS. PARFITT: Objection. Form.

THE WITNESS: I'm not sure what you mean by "directly," and I'm not sure what you mean by "methodology."

BY MS. BRANSCOME:

Q Did you apply a specific methodology in reaching your opinions here in the MDL?

A What do you mean by "a specific methodology"?

Q Did you -- did you use a methodology in forming your opinions --

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A Yeah.

Q -- in the MDL?

A I -- yes, I -- I collected as much information, data from different research studies as possible. I evaluated those studies. I ordered them according to the types of evidence that they provide. I tried to synthesize the evidence in particular in the basket of epidemiologic research on the topic. And I juxtaposed the information from epidemiologic evidence with evidence derived from other domains which are provided by other experts. And I made a professional judgment about how all of that fits with different ways of understanding the relationship between perennial use of talc and the risk of ovarian cancer.

Q Is the methodology that you just described that you used in forming your opinions in the MDL described in the textbook that you brought with you about risk factors in the workplace?

A It is implicit. It is implicit in the work of epidemiologists, and it's implicit in the way we synthesize information. So, in epidemiologic practice, the role of -- there's no

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cookbook recipe in how you start the day and finish the day. You collect data. You use your best judgment about how to synthesize and integrate it. And I guess it comes under the rubric of weight of evidence. You look at all of the evidence, and you (weigh it according to your professional judgment.

And most of the agencies that have any policies or statements about synthesizing information will talk about collecting information, evaluating it, weighing it, and making a judgment about it.

Q If someone were reviewing just your report in the MDL, would they be able to replicate the weight that you gave different pieces of evidence that you considered?

A The synthesis of scientific information is not an automated process. It can't be done by a robot. And in every description of how such evidence is synthesized and integrated, the final step always involves professional judgment, and as it should, because there are too many moving parts in all of this to be able to, a priori, set up an algorithm that allows you to automate and arrive at some score that tells you, yes or no, this

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agent is dangerous or not dangerous or something like that.

So in line with everything I've done in my career, everything that I've been involved with in international and national agencies, whether it's USNCI or the World Health Organization or other agencies, the process depends critically on judgment of the people who are making the decisions or who are making the evaluations.

Q Respectfully, Dr. Siemiatycki, that was not my question.

My question was, could someone by reviewing the report that you have provided in the MDL replicate your analysis in the sense that they would understand the weight that you gave to each piece of evidence you considered?

A I think to a considerable extent I've given fairly explicit information in the report on all of the components of information that I used and the relative weight, but -- not in a quantitative way, but the relative importance that I attribute to different parts of the evidence package.

Q You did not do any type of scoring system, for example, in considering the various

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underlying studies that you evaluated. Is that fair?

A No -- no, I did not, because I don't consider that a valid procedure.

Q Why is that not a valid procedure?

A Because I don't think epidemiologic studies can be summarized in single-digit scores. There are too many different aspects of a study, and any attempt to do so, I think is flawed and --

Q Why is the attempt to assigning a score, single digit or otherwise, a flawed methodology?

A Because there are so many -- a study can be good in one dimension, mediocre in a third, excellent in a fourth, bad in a fifth, so-so in a sixth, and so on.

There are so many dimensions of a study, and each one of them can be rated. And that's -- that is something that I do do. I evaluate everything from participation rate to the population in which the study was carried out, to the way the questions were asked in the questionnaire, to the way the information from the questionnaire was -- was coded and categorized, to the way the design of the -- whether its case controlled or otherwise, how the subjects were

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selected, when they were selected, when they were followed up, how -- all of these things may have a different score, and you may have a hundred dimensions to evaluate on each study. And nobody has come up with a -- a usable, useful, replicatable method for integrating all of this. There have been some attempts and there are some scoring systems out there. The fact that there are scoring -- that someone has published a scoring system, and that even a committee has, does not mean that it's valid.

But I -- my professional opinion, and that of I think many other people -- because typically studies are not scored in this way. That's -- when people review evidence. Or if they -- anyway, typically they are not, and my feeling is that there is no valid way really of doing it.

But the -- in order to sort of complete the answer to I think what's behind your question of why I didn't do such a thing in my report with all of the studies is that I adopted early on -- I made a decision early on to avoid excluding studies from my analysis based on my opinion about the quality of the study. This is a decision that

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other meta-analyses have also made implicitly. I don't know if they've made it explicitly, but there are no studies that have -- as far as I know, there are no meta-analyses that have literally excluded studies on the basis of quality or -- or done a systematic attempt to do this.

And I made a decision early on that if I tried to -- if I went down the road of eliminating some studies from my analysis, this would be criticized as some form of cherry-picking, and in an attempt to avoid that criticism, I decided I would include all pieces of evidence, notwithstanding my opinion of the overall quality of the study.

Q Okay. Dr. Siemiatycki, that was a very long answer, but I will try to unpack a few --

A Yes.

Q -- portions of that.

So you would agree that in order for a methodology to be valid, it has to be a process that can be replicated?

MS. PARFITT: Objection. Form.

THE WITNESS: What do you mean by "replicated"? You mean that someone else following exactly the same steps and the -- making

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the same assumptions as the -- the person who did the analysis would be able to end up with the same statistical estimates at the end? Is that what you mean? Or do you mean that they would make the same judgments?
BY MS. BRANSCOME:
Q Well, Dr. Siemiatycki, you indicated one of the reasons why you don't agree with using a quantitative point system was that a methodology had not been developed that was, I believe you said, useful, usable and replicable.
What did you mean by the word "replicable" when you used it in your own answer?
A Did I use the word "replicable" in that sentence? Can I -- can I read that? (Peruses monitor.)
I'm not sure what I had in mind with the use -- the word -- yes, you can produce a replicable system, but it doesn't mean that it's valid. So useful and usable, yes. I don't think that there is one that would capture, for observational epidemiology, the -- all of the components that are necessary really to tease out good and/or bad studies.
BY MS. BRANSCOME:

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Q My question to you, though, Dr. Siemiatycki, is that, is it important for a methodology to be replicable?
A It is important -- the most important is for it to be valid. The replicability is an issue that involves judgment. Different scientists may have different judgments about the value of different components of evidence. That diversity of judgment is not a bad thing, and there's no benefit to science in forcing everyone to have the same judgment within some scoring system.
So science progresses from collection of data and from different scientists evaluating the data, and from the same information base different scientists can make different judgments about it, and in that sense, the final evaluations are not necessarily replicable because different scientists can make different judgments.
But they are understandable. You need the different processes to be sufficiently understandable that different readers and so on of reports can understand how you came to the conclusions.
Q And so it is important to be able to understand what weight a particular scientist is

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giving to the pieces of evidence that he or she is considering in reaching their ultimate conclusion. Is that fair?
MS. PARFITT: Objection. Form.
THE WITNESS: It depends what you mean by "weight." If you mean by "weight" a quantitative number, then, no, that's not necessary.
If you mean sort of a heuristic, qualitative understanding of the relative importance of different components of evidence, then I would say yes. It's important to know what played into a -- a reviewer's opinion.
BY MS. BRANSCOME:
Q You also indicated that you do in fact rate studies. What did you mean by that?
A Sorry. Can we read back where I said that? I -- (peruses monitor.)
I haven't found it, but I -- I think I meant it as a synonym for evaluate. I think I meant I evaluate different studies.
Q Okay. If I could direct your attention --
A Yes.
Q -- to pages -- page 19, lines 6

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through 8.
A Of -- 19 of -- of what?
Q Of the transcript that's --
A Okay.
Q -- in front of you, which understanding is just a rough, but if you want to review your answer.
A Sure. (Peruses document.)
Yes, here by "rated," I meant evaluated.
Q Did you rank the different pieces of evidence that you considered in forming your opinion with respect to talc and the risk of ovarian cancer?
A I -- I've never done that in the hundreds and hundreds of evaluations I've carried out, nor in this one do I actually put a score on different components of -- of a study. Yeah.
Q My question is slightly different, Dr. Siemiatycki.
It's ranking them relative to each other. So whether or not you're assigning a specific quantitative number to the study, do you evaluate this is, for instance, the most important study and this is the least important study on a particular topic?

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MS. PARFITT: Objection. Form.
THE WITNESS: You mean overall or in -- in each dimension that the -- that a study is comprised of?
BY MS. BRANSCOME:
Q Did you do any type of ranking of that nature, be it in a subtopic or overall?
A Not -- not explicitly, no.
Q You mentioned at the -- at the end of your answer that you made a decision not to exclude studies because you would not want to face the criticism of cherry-picking; is that correct?
A Yes, I said that.
Q What is your understanding of the criticism of cherry-picking?
A My understanding is that one would -- one might look at a body of evidence, have a preconceived notion about the topic, the hypothesis under consideration, and use those studies that support that hypothesis and discard the other ones in some way.
Q Is that good science, in your opinion?
A No, that's not good science.
Q Why not?
A Because it doesn't produce an objective

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portrait of reality.
Q If a scientist were to selectively identify studies that were supportive of his or her preconceived notion, would you consider that analysis to be a valid one?
MS. PARFITT: Objection. Form.
THE WITNESS: Do you mean -- just -- I'm just trying to parse your question. You said if a scientist were to identify studies that were supportive, et cetera, but also that were in opposition or to exclude ones that are in opposition?
BY MS. BRANSCOME:
Q Fair enough.
So referring back to the scenario that you have described as cherry- picking --
A Yes.
Q -- if a scientist were to engage in cherry-picking, would you consider the ultimate conclusion that that scientist reached with respect to causation or increased risk of an agent to be a valid one?
A It should be suspect --
MS. PARFITT: Objection. Form.
THE WITNESS: It would be a suspect

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conclusion.
BY MS. BRANSCOME:
Q When I asked you the question of whether or not the methodology you applied here in forming your opinion in the MDL is contained in the book that you wrote about Risk Factors for Cancer in the Workplace, you said it was implicit.
Is that methodology explicitly described in that textbook or any of the other textbooks you brought with you today?
A I'm not sure that the methodology -- you know, I think it -- the collection of data, the evaluation of data, the judgment about the collection of data is a part of the scientific method, and it is so engrained and implicit in epidemiology and in other sciences that you don't really need to -- and scientists don't write in their books or in their -- unless they're talking to first-year students -- talk about this. It's so elementary that those aspects are not really described. One goes further in describing specific methodologies that would pertain to the topic under consideration.
Q Are there different ways to perform a meta-analysis?

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A Yes.
Q Okay. Did the method that you chose in developing your meta-analysis, is that explicitly described in any of the materials you either brought here with you today or of which you are aware in the scientific community?
A So it partly depends what you mean by "a meta-analysis." And in my lexicon, meta-analysis is a statistical procedure for summarizing a body of -- a set of results from individual studies. And that procedure is pretty standard -- has been pretty standard since the 1980s and 1990s, and there are some refinements since then.
Sorry, I may have lost the thread of your question.
Q If I were to try to look at a piece of scientific literature, be it in a book or an article, to find a published description of the method that you used to perform your meta-analysis in the MDL, where would I look?
A The meta-analysis was conducted using a software that is well known, that is commercially available, and I think everyone would recognize the validity of the statistical procedures under those -- under that.

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If you're asking about which -- you know, there are decisions to be made about which studies to include, about which results from studies to include, and all of that sort of thing, which is not strictly part of the statistics of meta-analysis, it's sort of the step before meta-analysis, and that part is utterly unique to each situation.

So if you're doing a meta-analysis of clinical trials that have all been designed basically in an identical way for an antihypertensive medication, and whether the study is done in Australia or California or Canada, the design is pretty standard, and a lot of it can be -- you can -- and you end up basically with a single result from the study, what is the impact on blood pressure -- the average impact on blood pressure among people who use it who were given the drug, the experimental group versus a comparison group, et cetera, that is one type of preparation for a meta-analysis.

If you're dealing with observational epidemiology, as we are in the case of ovarian cancer, and some of the particularities of the literature in this domain, there are a lot of

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decisions that need to be made in the run-up to the meta-analysis.

Q So in the situation where you are dealing with observational epidemiology, would it be fair to say that you are applying unique judgment in the selection of the studies that you include in your meta-analysis and, more specifically, what data from those studies you include.

MS. PARFITT: Objection. Form.

THE WITNESS: Any meta-analysis in this area would absolutely need to apply professional judgments to those things.

BY MS. BRANSCOME:

Q Okay.

A Mine included and every -- everyone else's included.

Q All right. So, Dr. Siemiatycki, getting back to the materials that you brought with you today, you mentioned that you brought three binders of scientific literature. Was that correct?

A Three binders of the references to my report.

Q Okay. So that's what I wanted to

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clarify.

So the three -- the three binders that you referred to as sort of this first set of materials, are those all references that are identified specifically in your report from the MDL?

A Yes, I believe so. And just to be clear, when I was sent this material from the lawyers' office, it arrived in four binders. I'm not sure if you received the same four binders. I have re- -- I've taken some things out of there, so I have three binders of those things. Just -- I don't know if there's confusion just between the three and four, but...

Q What did you remove from the set of materials that you were provided by plaintiffs' counsel?

A I removed the IARC reports, which I have in books, so I didn't need to carry around hundreds and hundreds of pages extra.

I removed some other -- there was another report with, you know, thousands of -- hundreds or -- at least of pages where I thought the relevant material was in -- contained in about 20 pages. So I kept -- in material that I carry

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around, I kept the 20 pages and put the rest away in a box.

Q Do you remember which document that was?

A If you give me a minute, I'll try to recreate that.

Q We can check that at the break if you want --

A Yeah. Sure, sure.

Q -- to identify that document.

So then you -- you spoke about an additional five binders --

A Yeah.

Q -- that you brought with you that contain documents that might help you answer questions during the deposition.

Can you describe the contents of those five binders. I'm trying to avoid marking all of these as exhibits.

A Yeah. Please.

Okay. Let me just reach down and look at their covers.

Yeah, so one contains the recent manuscript of a study by Taher, et al., a Canadian meta-analysis of the issue, plus -- let me see if there's anything else in there. I -- I think

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that's it. It's such a -- such a big report with all the appendices and so on, that it takes up a whole binder.

Another one, a smaller one, contains the meta -- the main meta-analyses that have been done in this area, apart from the Taher one. So the Berge, Penninkilampi, a few other older ones, Langseth and some of the older ones.

Q Are those materials that are in the set of meta-analysis, the second binder, if you will, are they replicated also in the other set of three binders that you brought with you?

A Yes, they are.

Q Okay.

A Yes, they are.

Sorry. There's -- there's another one in -- like that which contains all of the original epidemiology studies that I used or that were available to be used in the meta-analysis. And I had this binder in my previous -- in the previous case that I testified on, and I thought I -- I'd like to have one binder here just of the epidemiology studies because the thick binders, it's harder for me to find articles, so it would be easier for me to find them in this binder. So

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all of these are in the big binders.

And there's another one with Health Canada weight of evidence guidelines. Also guidelines from a European agency on weight of evidence and evaluation. I think there might be something from FDA about that, and also some of the information regarding agency -- what agencies have put on their websites, if anything, about talc, which would include the National Cancer Institute and some other agencies.

So these are mainly -- well, partly printouts from websites. Partly the Canadian Risk Management scope for talc published very recently from the Canadian Department of Health. And this sort of information. Not -- not all of those are in the thick binders.

Q Are all of the documents in the binder that you are holding there, which I think is your fifth binder, are all of those documents identified within your report or in your reference materials?

A No.

Q I would like to mark that binder as Exhibit 4.

(Exhibit No. 4 was marked for identification.)

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BY MS. BRANSCOME:

Q Now, Dr. Siemiatycki, with the exception of a copy of your report, which you previously testified has some handwritten annotations on it, do any of the other materials that you brought with you today have any notes, handwritten or typed, or highlighting or any other form of annotation?

A Yes. The -- the epidemiology studies and probably the meta-analyses, the previous meta-analyses. I -- I tend to scribble notes when I'm reading an article on the side, so some of those may very well have scribbled notes on -- in the margins or things underlined.

Q Dealing first with the binder of the original epidemiological studies that you said you had at a prior deposition, have you annotated that in any way since you brought that to another deposition?

A Since today? Sorry.

MS. BRANSCOME: Michelle, perhaps you could help me.

MS. PARFITT: Sure. Yeah, absolutely.

MS. BRANSCOME: Has that specific binder

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been marked as an exhibit at a prior deposition?

MS. PARFITT: Let me see which one.

Ms. Branscome, I don't want to represent -- and I would tell you that these were all the studies that he's had over the course of the last few years. I can't imagine it wasn't asked for in prior depositions, but I can't -- I can't represent --

MS. BRANSCOME: Okay.

MS. PARFITT: -- one way or another. I really can't.

MS. BRANSCOME: Let's go ahead. I would like to mark the binder --

MS. PARFITT: I will tell you this -- maybe I can. There are pink numbers, number 10, number 14, which suggest to me that they might have been referenced in a deposition at one point in time as an exhibit.

THE WITNESS: Not -- some of them, but not all of them, have those numbers.

MS. PARFITT: Okay.

THE WITNESS: They also have numbers in the corner of my -- my team's personal filing system of articles, so things like that.

MS. BRANSCOME: Out of an abundance of

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caution, we will mark the binder that has been described as containing the original epidemiological studies as Exhibit 5, and the binder that contains the meta-analyses as Exhibit 6.

(Exhibit Nos. 5 and 6 were marked for identification.)

BY MS. BRANSCOME:

Q Did you bring anything else with you to the deposition today?

A Cell phone, glasses, et cetera, but no.

Q I was provided before the deposition began with a single piece of paper that I understand to be a bill for professional services.

If we could mark a copy of that as Exhibit 7.

MS. BRANSCOME: Michelle, I don't know if you have an extra copy.

MS. PARFITT: I do.

(Exhibit No. 7 was marked for identification.)

MS. PARFITT: I have additional copies for counsel, if you would like.

MS. BRANSCOME: I think we passed one around.

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BY MS. BRANSCOME:

Q Dr. Siemiatycki, do you recognize the document that's been placed in front of you that's been marked as Exhibit 7?

A Yes, I do.

Q And could you describe for the record what this document is.

A It's a bill for services that I sent to Ms. Parfitt dated November 18, 2018, in which I billed for work done between August and November 2018 on the MDL case.

Q Is it correct that this is a bill that covers 56 hours that you billed in connection with your work on this case in the month of July through August 2nd, 2018?

A Sorry, do -- July? Is this the same --

MS. PARFITT: August. I have August to November.

THE WITNESS: Do you have a bill labeled July?

MS. PARFITT: We have July to August, and here's the August --

BY MS. BRANSCOME:

Q Sorry, we had different pieces of paper, Dr. Siemiatycki.

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A Okay.

Q So why don't we mark as Exhibit 8 the bill for professional services that covers the month of July.

(Exhibit No. 8 was marked for identification.)

MS. PARFITT: Sure. I don't have extras of those. Does anyone have a clamp? If I could have one of those? Thank you.

MR. TISI: Number 7, for the record, is the one that goes to November.

MS. BRANSCOME: We'll -- we'll clear it up.

MR. TISI: Thank you.

THE WITNESS: Got it.

BY MS. BRANSCOME:

Q So, Dr. Siemiatycki, you have two exhibits in front of you there, an Exhibit 7 and an Exhibit 8.

Do they both contain bills for professional services for the work that you have done in connection with this litigation?

A Yes, they do.

Q And what has been marked as Exhibit 7 covers a work period of August 9th through

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November 16th, 2018, during which you billed 136 hours; is that correct?

A That's correct.

Q And then Exhibit 8 covers the period of time July 1st through August 2nd, 2018, over which you billed 56 hours; is that correct?

A That's correct.

Q And you bill for your time at $450 an hour, correct?

A That's correct.

Q Do the two bills for professional services that have been marked as Exhibits 7 and 8 contain any time for work done by others at your direction?

A They contain work that has been done by a couple of -- by one research assistant, and I make an arrangement with her to reimburse her for her time. So it's -- it's covered in these, yes.

Q Okay. And so how is your research assistant's time billed to plaintiffs' counsel?

A It's not billed. I -- I adjust the billable hours to reflect the time that she works for me.

Q So if I was looking at Exhibit 7 and Exhibit 8, how much in terms of hours of this

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reflects your personal time?
A Between 95 percent and 98 percent, almost all of it.
Q And do the two exhibits that you have in front of you there, Exhibit 7 and Exhibit 8, does that cover all of the work that you have done in connection with forming your opinions in this case, meaning the MDL?
A In forming the opinions for the report, yes.
Q These bills do not include time that you spent preparing for today's deposition, correct?
A That's correct.
Q About how much time have you spent preparing for today's deposition?
A I would say the time since November 18, which is referenced here, to today, there were actually two components. One was preparing for the deposition. Another was a bit of a flurry of activity in December, I think it was, when a couple of reports from Health Canada and from the Taher group were published, and I reviewed and tried to think about that information as well.
So just to be as precise as possible, I just want to make that clear. It's not -- it

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wasn't only preparation. But I -- I guess we're talking about a couple of weeks' work in -- since November, but between six and ten days maybe, something in that ballpark.
Q And how would -- what would that be in terms of hours?
A Between 40 and 60 hours or -- subject to revision, I could -- I could look that up.
Q Have you billed plaintiffs' counsel for that time yet?
A No, I haven't.
Q Presumably you will be billing them for the time you spend here today during your deposition as well, correct?
A I -- I presume so as well.
Q You referenced a flurry of activity in December related to the Health Canada information becoming public.
Did you produce or generate any type of written work product in connection with your review of those materials?
A No, I didn't.
Q Did you take any notes while reviewing the materials that came out in December -- around December 2018 related to the Taher manuscript and

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paper and the Health Canada statement?
A No, I didn't.
Q Did you annotate any of the materials that you reviewed?
A I'm -- I'm not sure. I typically have a pen in my hand when I'm reading, so I couldn't say that I never underlined anything or -- I just don't recall making any -- and I don't know that I could find -- if I did look at it in December, I'm not sure I could find that copy because I -- I tend to print things over when -- and I -- there was nothing written that I wanted to retain. I didn't write anything that I have used or -- yeah.
MS. BRANSCOME: We've been going for a little over an hour. Is now a good time to take a break?
THE WITNESS: It's a great time.
THE VIDEOGRAPHER: We are going off the record at 10:55 a.m.
(Recess.)
THE VIDEOGRAPHER: This begins disc number 2 in the deposition of Jack Siemiatycki. We're going back on the record at 11:15 a.m.
BY MS. BRANSCOME:
Q Before we took the break,

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Dr. Siemiatycki, we were looking at the two bills for professional services that have been marked as Exhibit 7 and Exhibit 8.
And so in addition to the 56 hours that are on Exhibit 8, the 136 hours on Exhibit 7, and the approximately 40 to 60 hours you have spent since mid-November of 2018, how much time have you spent in connection with your opinions across all talc litigation?
MS. PARFITT: Objection to form.
THE WITNESS: Including the previous case that I was involved in, you're saying?
BY MS. BRANSCOME:
Q Yes.
A Whew. I -- four to six weeks maybe or -- I spent, I think, nearly two weeks in LA while that case was going on, so that's one big block of time. And then I -- at least a month full time, the equivalent of, before that. But, I'm sorry, I can't be more precise.
Q What would that be in terms of hours?
A Hours. Let's say eight hours a day -- 30, 40 -- 400 hours plus or minus 200.
Q So a range of between 200 to 600 hours, do you think?

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MS. PARFITT: Object.
THE WITNESS: It would be more than 200 for sure. So -- to the best of my recollection, it might be between 400 and 600. But...
BY MS. BRANSCOME:
Q How much have you billed to date for all of the work you've done in connection with talc litigation?
A Well, I -- I don't remember.
MS. PARFITT: Don't guess.
THE WITNESS: I don't remember a total.
BY MS. BRANSCOME:
Q Do you charge $450 per hour for all types of work that you have done in connection with the talc litigation?
A Yes, I do.
Q Do the fees that you charge in connection with your work as an expert witness in the talc litigation go directly to you personally?
A Yes, they do. Well, they go to a corporation that -- that I control, as you see in the bills.
Q Do you pay anyone else for the -- using the funds that the corporation has received for the expert work you've done in connection with the

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talc litigation?
MS. PARFITT: Objection. Form.
THE WITNESS: Yes, when I ask someone to do some specific tasks, I pay them for that.
BY MS. BRANSCOME:
Q And are the fees that you pay to other individuals for tasks that they do in support of your work, do those fees get billed to plaintiffs' counsel?
A No, they don't.
Q Can you give me an approximation of how much you have paid to others from the fees you have billed to plaintiffs' counsel?
A In MDL or in total?
Q In all of the talc litigation.
A My guesstimate would be that it's in the order of 2 or 3 or 4 percent -- maybe 2 percent of the total that I've billed.
Q So it's fair to say that approximately 96 to 98 percent of all the fees that have been billed to plaintiffs' counsel for your work as an expert in the talc litigation will come to you personally?
A Yes.
Q What percent of your professional time

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do you currently spend performing work in connection with litigation?
A By presently, can you give me a time frame? You don't mean today, I presume. When you say -- do you mean in the last year? In the last 10 years?
Q Let's say over -- over the past 12 months, what percent of your professional time was spent performing work in connection with litigation?
A Ten to 20 percent ballpark.
Q And has that percentage of time spent on work in connection with litigation changed over the past five years, for example?
A Yes, it's very variable depending on requests for participation in litigation. So in the past five years, my main contact with litigation has been in the ovarian cancer cases, but at -- around five years ago, I was also working on two other cases in Canada.
Sorry, what was the question?
Q Sure. How -- I'll ask a new one.
How has the percentage of time that --
A Oh, oh.
Q -- you spend in connection with work

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done related to litigation changed?
A Any litigation, right?
Q Yes.
A Or -- or talc litigation?
Q I'll start with all litigation.
A So it's -- as I said, it's very variable from month to month. And -- and -- I mean, I guess over the past five years, it has kind of averaged out at about 10 percent of my time, 10 to 20 percent of my time.
Q And over the past two years, has all of the litigation work you've been doing, has that been exclusively focused on talc?
A Yes.
Q The report that -- sorry, the report you prepared in connection with the MDL is not the first expert report you have generated with respect to a potential link between talc and ovarian cancer, correct?
A That's correct.
Q You produced a report in connection with the talcum powder litigation dated October 4th, 2016, correct?
A That's correct.
Q If you could turn in your binder there

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to tab 2.
A In this big binder?
Q Yes, please.
Is the document behind tab 2 your expert report dated October 4th, 2016, that related to the talcum powder litigation?
A Yes, it is.
MS. BRANSCOME: I would like to mark that as Exhibit 9.
(Exhibit No. 9 was marked for identification.)
BY MS. BRANSCOME:
Q The report marked as Exhibit 9 was not drafted for a particular case; is that correct?
A I -- I -- I'd have to defer -- I'm not exactly sure sometimes whether these reports refer to a specific case or not.
Q Okay. Let me do it this way: What was the question that you were attempting to answer in the report that has been marked as Exhibit 9?
A So the question was the generic question of whether there is a causal relationship between use of talcum powder products and ovarian cancer.
Q And specifically, the report marked as Exhibit 9, were you looking specifically at

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perineal or genital use of talc?
A That was the focus, yes.
Q Did your 2016 report address any cancer risk associated with the inhalation of talc?
A Not that I recall. It certainly wasn't a focus. There may have been some reason to allude to that issue, but I can't recall that it -- that there was.
Q Okay. You had your deposition taken on December 15th and 16th, 2016, correct?
A I believe so.
Q And that deposition was for two specific cases, the Oules and the Daniels case, correct?
A I guess so. But again, I -- that -- I'm -- I don't recall exactly which cases.
Q You also have testified at trial in a case involving allegations about Johnson's Baby Powder, correct?
A That's correct.
Q And that was the Echeverria case?
A Yes, it was.
Q And you testified in trial in August of 2017, correct?
A Correct.
Q You did not issue an expert report

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specific to the Echeverria case, correct?
A Correct.
Q So the expert report that described the opinions that you were offering in that case is the one that we have just marked as Exhibit 9. Is that fair?
MS. PARFITT: Objection. Form.
THE WITNESS: I -- I'm -- I'm hesitating because I'm not sure what the significance of the phrase "the expert report that you offered" is. I didn't -- I didn't in a sense offer this report for -- at that trial. I testified at that trial, and they had this expert report available to them.
BY MS. BRANSCOME:
Q Okay. Let me ask it this way: You generated an expert report specific to the MDL, correct?
A Yes.
Q And we are going to look at that --
A Yes.
Q -- but that is a report that is dated at some point in 2018, correct?
A Correct.
Q Did you generate an expert report at any time in between the expert report that you

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generated there in October 2016 and the expert report you have supplied that's dated November 2018?
A No, I did not.
Q All right. So if I may, I would like to actually mark your copy of your 2018 report. And that will be marked as Exhibit 10, if you have that in front of you.
(Exhibit No. 10 was marked for identification.)
(Counsel conferring.)
BY MS. BRANSCOME:
Q To be clear, for the record, I'm marking as Exhibit 10 your MDL expert report, but it is your copy.
A Yes.
Q Okay. And as I understand it, the copy that you brought with you here today that's now been marked as Exhibit 10 contains some corrections. Is that -- is that fair?
A Yes.
Q Could you please walk me through the corrections that you have made to your 2018 MDL report that has been marked as deposition Exhibit 10.

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A Yes. So the first is on page 47. And in the first full paragraph that begins with "Table 9," on the fourth line --
Q Let me pause you there for a moment, Dr. Siemiatycki. Are we both looking at page 47?
A Now, I -- I'm not sure whether I printed this in a way that is not -- does not correspond to the version that you have. I'm sorry. I printed this just for my own use, so I didn't --
Q No, looking at it, it looks similar.
A Oh, okay.
Q So why don't you direct me to the specific correction. I thought you were referring to the image of Table 9.
MS. PARFITT: No, no. I think we're all on the same -- it's the same one you have --
THE WITNESS: Okay.
MS. PARFITT: -- on your thumb drives.
THE WITNESS: Okay.
BY MS. BRANSCOME:
Q All right, we'll start again. So, Dr. Siemiatycki, if you could identify for me the corrections that you are making to your MDL report from November 2018.
A Right. So on page 47, the first full

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paragraph, the fourth line, there are some numbers. It says "1.25," and then in parentheses, there is a 1.0 that was really a literal typo. Someone's -- my fingers were too heavy, and the one -- the first 1.0 should be dropped, and so the correct number is 1.15 to 1.36. Okay?
The next one -- I'm sorry. Oh, the next one is on page 45, so a couple of pages earlier, in the second line -- are you with me? -- the sentence that begins "While the Terry 2013." It should be the Berge -- "While the Berge" -- the first Terry -- I'm just thinking out loud again. Whether in fact the Terry was the correct -- anyway, yesterday when I was correcting this quickly, I thought that it -- that I had miswritten "Terry 2013" in that sentence and that it should have been Berge 2018.
Do you mind if I look at this again at lunchtime and just verify which I was referring to? I'm now confusing myself about that.
Q Not a problem. We can come back to that after -- either the next break or the lunch break.
A And that -- those are the only corrections I picked up as I was going through it.
Q I noticed as you were flipping through

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your copy of your report that there were other handwritten annotations.
A Yeah.
Q Can you please walk me through -- unless it's voluminous, in which case we can do it after a break -- any notations that you have made in your copy of your MDL report.
A It's not voluminous. I didn't make many. One is on page 49. And in the middle of the page in italics, there is a misconception counting, et cetera, and just before that, I was talking about hospital-based studies and population-based studies. So the section that begins on page 48 is about hospital-based versus general population-based studies. And I made a note to myself after that -- at the end of that section, also --
I mean, do you want me to quote what I wrote?
Q Yes, please.
A Sure. I said: "Also the basin for hospital controls may differ from the basin for cases."
Q And what did you mean by that?
A So, you're familiar with the idea, a

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hospital-based study? There are actually different types of hospital-based studies, which is something that has not come out in, really, in any of the discussion of this literature.
But one of the problems with hospital-based studies is that when you choose a control group, let's say for a series of ovarian cancer cases from a given hospital, and you go to a different ward in that hospital to look for controls who are not -- don't have ovarian cancer -- the reasons for referral and the -- the pattern of patients coming to hospitals differs for different diseases. So serious -- it generally is the case that serious diseases in specialized hospitals tend to come from a wider geographic and social area than cases of traffic accident injuries or things that are treated in general hospitals more easily.
And if you just take a series of cases of ovarian cancer and go to the emergency department to choose controls or you go to the GI surgery department where they do appendectomies routinely or something like that, you're picking up populations who are quite different.
And this is one of the disadvantages of

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a hospital-based control strategy, and it's one of the reasons why, in general, epidemiologists favor population-based studies rather than hospital -- case control studies, population-based case control studies, rather than hospital-based case control studies, because the cases and the controls -- one of the requisites in a case control design is that the patients -- the cases and the controls should represent the same study base, the same basin of people who if they were cases with the disease in question, ovarian cancer, this is where they would end up, and all of them would end up there.

Q Are there any studies that were relevant to your analysis for your MDL report that you think this particular criticism that you have just explained applies to?

A I'm not sure. I didn't examine them from that point of view.

In this section of my report, it was kind of a generic discussion of the issue of -- of the merits of hospital-based versus population-based studies.

Q Okay. Do you have any other annotations that you made in your copy of your MDL report?

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A At the bottom of that same page, 49, I wrote, quote, "Borenstein." And right now I'm -- oh, yes. So this misconception about counting the number of statistically significant results as a valid way of assessing consistency of results among different studies is a basic flaw in the conduct and interpretation of how to review a series of studies.

It's well known. I've known and I -- I said it in my report that this is absolutely not the way to synthesize evidence from multiple studies, to count the number of significant ones. And in addition to me saying it and many others, I thought that I could -- if you asked me questions about it or challenged my opinion on that score, I could quote the textbook on meta-analysis, which gives some good examples of why that's wrong.

MS. PARFITT: Let's stop here for a minute --

MS. BRANSCOME: If we could go off the record.

MS. PARFITT: -- and go off the record.

THE VIDEOGRAPHER: We're going off the record at 11:39 a.m.

(Pause.)

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THE VIDEOGRAPHER: We're going back on the record at 11:41 a.m.

BY MS. BRANSCOME:

Q Do you have any other annotations there with you on your copy of your report?

A No. I have one other green sticky on page 67, but there's nothing written on that page, and I don't remember why I put that sticky there.

Q Okay. The report that we just marked as Exhibit 10, does that define the scope of your opinions in the MDL?

A The scope of my opinions. It defines my opinions, yes.

Q Does it contain all of the opinions that you intend to offer at any trial or hearing in the MDL?

A I mean, I guess if I'm asked a question that veers off from something I said in my report, and I address the question, would that be considered going off -- you know, offering an opinion that is not in my report?

It's just that -- I'm just not sure about the technicality of your question. I mean, I will offer -- I will answer questions even if they lead off the content of my report.

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Q As you sit here today --

A Yes.

Q -- does the report that has been marked as Exhibit 10 contain all of the opinions that you have formed as of today about which you would intend to testify at trial or a hearing on this matter?

A I -- I believe so.

Q What was the question that you were asked to answer in connection with the report you generated in 2018?

A I guess I -- I'll just refer back to what it says in the report: "Can application of talcum powder products in the perineal region cause ovarian cancer?"

Q Is that question different from the question you were answering in your 2016 report?

A I -- I don't see them as different.

Q You would agree with me, though, that there are differences between the report that you produced in November 2018 and the report that you produced in October 2016?

MS. PARFITT: Objection. Form. Vague.

THE WITNESS: Yes, there are some differences.

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BY MS. BRANSCOME:
Q When you began drafting the report that's been marked there as Exhibit 10, your MDL report, did you begin by using your 2016 report as an initial draft?
A Yes. But I also had some ideas about new things that I would want to do. Sort of coming out of the Echeverria experience, I realized that there were -- there were a couple of errors in that -- my original report that I wanted to correct. There were ways of doing the analyses that, on reflection, I thought were not optimal and that I could improve on, even if I anticipated that the bottom line results would not change much. But when I came to actually drafting the text, I certainly used the previous report as a primary source for revising -- for -- for drafting the new one.
Q You mentioned that you wanted to make some modifications because there were things in the 2016 report that were either not optimal or were errors.
Were any of the modifications that you made done at the suggestion of plaintiffs' counsel?

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MS. PARFITT: Objection.
THE WITNESS: No.
BY MS. BRANSCOME:
Q So any of the changes that you made between your 2016 report and the MDL report in 2018, were those all at your own prompting?
A Yes.
MS. PARFITT: Objection. Form.
THE WITNESS: Yes.
BY MS. BRANSCOME:
Q Did you work in the same computer file to draft the 2018 report from start to finish?
MS. PARFITT: Objection. Form.
THE WITNESS: You're -- you're referring to the text, not the statistical analyses, which were done in a separate -- I mean, they -- they -- the statistical analyses were based on the addendum that I presented to you, and those are kept on a FileMaker software, which is not on my personal computer, but that my assistant has access to.
But as far as the text is concerned -- yeah, I think it was the same computer, but I've changed computers since then, so I'm just hesitating because I'm trying to think of the time

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sequence, and I use both of them now but in different places.
But -- so is your question, is it exactly the same computer that all the files were kept on or -- is that the sense of your question?
BY MS. BRANSCOME:
Q How about I ask it this way: Can you describe for me the process by which you drafted your 2018 report that's been marked as Exhibit 10?
A So I guess there were two parallel things going on, or maybe more. One was to do some reanalyses of the statistical meta-analysis. And so that I initiated at a certain point between -- probably in 2018.
At the same time, and I'm not sure if this was after or before the statistical analyses were started, I looked at the old draft. I reviewed what was there, what I thought were weaknesses in the way of expressing things or things that could be brought to the report that would enhance the clarity or the force of the -- the exposition, and I started redrafting. So I'm not sure if that answers your question.
Q Did you personally type the words that are contained in Exhibit 10?

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A All -- maybe all of them, and maybe there were some paragraphs that I handwrote because I was on a plane or a train, and when I got back to the office, I asked someone to type up that paragraph or two. But basically it was done by me.
Q And did you save draft versions along the way?
MS. PARFITT: Objection. Form.
THE WITNESS: Not really. Not -- certainly not systematically. I didn't see any reason to save discarded versions of things. Yeah.
BY MS. BRANSCOME:
Q Did you conduct a new literature review in connection with the 2018 report?
A I knew that I had all of the literature that was pertinent and published as of 2016. Updating what was available was partly done by asking my research assistant to do a PubMed search of anything new on the topic; asking the lawyers if they had come across anything new in the past year; my own antenna of knowing a lot of epidemiologists and people who work in this area, whether they are aware of anything. So sort of an

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informal updating process from many branches.
Q Did plaintiffs' counsel provide you with studies that had come out since you had generated your 2016 report?
A I think they sort of pointed me to a couple of things that I didn't have at the time. I think one was the Penninkilampi review.
We're talking about the epidemiology literature or everything? Because the epidemiology literature I was pretty much in control of through my networks and my people and so on.
The stuff that I asked counsel to help with was identifying literature in the areas of toxicology, composition of talcum powder products, mechanistic research that would bear on the issue. So I asked them if they would provide me any new data that they had available on those topics.
Q Do you consider yourself an expert in toxicology?
A No. I'm sufficiently familiar to be able to integrate the expertise of -- of real experts.
Q Do you consider yourself an expert on the composition of talc?

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A No.
Q And do you consider yourself an expert on potential biological mechanisms of the development of ovarian cancer?
A No.
Q Other than being aware of the opinions of others in those particular fields, are you offering any expert opinions in toxicology, the composition of talc, or the biological mechanism by which ovarian cancer may develop?
A I'm --
MS. PARFITT: Objection. Form.
Go ahead.
THE WITNESS: I'm -- I reviewed the information that I was provided, and I took note of the types of evidence that are available in those domains, and I used it mainly in thinking about biological plausibility of the association. It -- those areas of evidence did not in any way influence my opinions about the strength and consistency and so on of the epidemiological evidence.
BY MS. BRANSCOME:
Q Did you -- oh, before I forget, what is the name of the software that you used to do the

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statistical analysis for your meta-analysis?
A It's -- I think it's called Meta-Analysis, but -- it's called Comprehensive Meta-Analysis, Version 3. It's listed in my report on page 34.
Q And is that the only software that you used to perform the statistical analyses in your report?
A It's the only software that I used to perform the meta-analyses. Are there any other -- I'm just trying to think if there are any other analyses in the report besides meta-analyses or statistical.
There were a couple of studies, and I -- I couldn't point them out just this minute, that did not provide full information allowing -- that didn't provide full information on odds ratios or relative risks in a format that was useful for the meta-analysis. And -- but they did provide the numbers of cases and controls who were exposed and unexposed. And that would typically -- I think in at least one instance, maybe two, but at least one instance, there was a situation where they provided odds ratio estimates in different categories of usage of talc or either different

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durations or different amounts used per day or something like that, but didn't summarize that in an overall ever-used-it-at-all versus never-used-it, which was what I was looking to use in the meta-analysis.
And I think in those -- in that instance, I did almost a hand calculation. Because it's pretty straightforward how you do this, just re- -- picking the numbers in their tables and recalculating the overall odds ratio.
But this is a few years ago, and I -- I -- I would have to go back and review that, but it was -- I think in the other meta-analyses, Berge and Penninkilampi, which were carried out completely independently of mine, and I didn't know about theirs, I think they had to do something similar and arrived at the same answers.
So -- but, no, I mean there was no -- no other statistical package used. That kind of calculation can be done by hand.
Q How would -- how would I, if I'm looking at your report, identify which studies you actually calculated the odds ratio or relative risk that you input into your meta-analyses?
A I -- I -- I'd have to look at it at

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lunchtime, if you don't mind, and see if there was one.

There was one. I don't know if that was retained in the end or if -- I'm sorry. It's --

Q When you say you don't know if a study was retained in the end, are there studies that you considered including in your meta-analysis and ultimately did not?

A Only if they didn't provide evidence on the relationship between talcum powder used in the perineal area and ovarian cancer.

Q All right. If you wouldn't mind looking at that at lunch, we will come back --

A Yes. Thank you.

Q -- to that after the lunch break.

THE WITNESS: Someone make a note for me.

BY MS. BRANSCOME:

Q Did you --

MS. PARFITT: Yes, a note.

BY MS. BRANSCOME:

Q Did you personally conduct the meta-analysis that was performed as part of your 2018 report?

A No, I did not do the --

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Q Who did that?

A My student.

Q And what is your student's name?

A Mengting, M-E-N-G-T-I-N-G, Xu, X-U.

Q And -- and what are -- is it Mr. or Dr. Xu?

A It's -- she's a Ph.D. student at the moment. She will be a doctor.

Q What are her qualifications for conducting a meta-analysis?

A She is very skilled at statistical analyses and at -- at computer packages. I'm not sure if she's taken a course in meta-analysis specifically, but it's not rocket science to do that with a package like the one we have.

Q Did you verify that the meta-analysis was performed correctly using the software?

A I looked at the results in various ways to assure myself that everything looked good. By looking good, I mean that there was internal coherence, like she carried out many different meta-analyses under different conditions and -- not different conditions, but including some studies and excluding studies -- these are called sensitivity analyses -- and the pattern of results

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from one to another was perfectly in line with what I would expect.

Furthermore, the results that we obtained are almost identical to the results that others have independently obtained doing meta-analyses on these topics using basically the same studies. Sometimes the difference of -- minor differences of which result from each study they selected, but basically the results are so similar that I'm confident that there was no glitch.

Q Did you save the results of these sensitivity analyses?

A Do you mean the output from the computer software for each one? Is that what you're --

Q Is there any way from the materials that you have produced in connection with your report for someone to replicate the sensitivity analyses that you performed?

MS. PARFITT: Objection. Form.

THE WITNESS: Well -- I reproduced in the report a few plots of -- that come straight out of the program. So for those, it's absolutely replicatable. Anybody can then go to the package and put -- punch in the same input, and they'll --

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they'll get the same output. For the -- I didn't do that for every single sensitivity analysis, just for economy -- to save the reader the burden of that. But I'm pretty sure -- I'm pretty sure that Mengting kept files of each of those analyses.

BY MS. BRANSCOME:

Q Did anyone else -- you mentioned a research assistant helped you with PubMed searches. Who was the research assistant?

A She's a woman, who was with me for 30 years or so, who was basically the bibliographic expert in our team and helped people find articles and do things necessary, like PubMed searches and so on. So she -- while she was here -- she retired a year or so ago. While she was here, I asked her to look at the ovarian cancer/talc thing, and she dug out some -- she found some articles for me.

Q Is that Sally Campbell?

A Yes, it is.

Q Okay. After Ms. Campbell retired, did anyone else help you perform literature searches?

A Not in a routine way for sure. If I wanted to find a specific article that I knew

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about, I would typically ask my student Mengting to dig it out and print it for me.
Q So in addition to Ms. Campbell and Ms. Xu --
A Xu, yes.
Q -- did anyone else help prepare the materials that are in your 2018 report?
A Yes. So I have another research assistant who's been with me even longer than Sally Campbell, who retired a month ago, and her name is Lesley Richardson. And she set up and maintained the database system in which we integrated all of the results that are in that addendum that I provided you, and that involved reviewing each article and taking every single result and plugging it into this software.
Q Did Ms. Richardson exercise any of her own judgment in selecting which data to include in the meta-analyses?
A The instruction was to extract everything. Simple instructions can become difficult in operation. And some of the frustration in this area and some of the reason why there is some variability in which studies and which results are included in different

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meta-analyses occur because authors are sometimes cryptic about what they say about their data and their results. And specifically things like what kind of talc use a certain table describes is not always perfectly clear.
And so she would need to make a judgment sometimes as to whether this result pertained to all use of talc in the perineal area or only powdering, excluding sanitary napkins or other -- sometimes it -- there's ambiguity in the write-up of these things that therefore requires -- required some judgment on her part. And several of these things she would ask my opinion about, and we would discuss it and say, Well, it looks like this or it looks like that, and let's go with this interpretation.
Q Okay. And at the end of the day, despite receiving help from others in developing your 2018 report, do you personally stand behind everything that is in the report?
A Yes. Barring more typos. I know that every time I look at anything I've ever written or, you know, things that are expressed not in the most clear way. But, yes, I stand behind everything.

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Q Okay. And you mentioned reviewing the materials that came out in connection with Health Canada and the Taher manuscript, and we'll talk about that in more detail, but did anything you reviewed since the production of your 2018 report, has any of that changed your opinions or any of the information that is contained in your MDL report?
A It doesn't really change anything. I would say that the Health Canada report reinforces the notion that this issue is becoming a front burner issue for public health agencies. But it -- since I didn't explicitly address that question in my report, I would say it doesn't change anything that's in my report.
Q Do you intend to offer expert opinions about the different positions of the different public agencies and the relative importance of a potential connection between talc and ovarian cancer?
MS. PARFITT: Objection. Form.
THE WITNESS: Did I intend -- while writing my report, do you mean, to make -- no. I don't think that those agencies and those positions necessarily reflect the most up-to-date

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science, and I think the most up-to-date science is in the science community through publications and so on, and public health policies tend to lag behind scientific knowledge.
BY MS. BRANSCOME:
Q Are there instances where public health policies are more conservative than the scientific literature out of sort of a principle of precaution?
MS. PARFITT: Objection. Form.
THE WITNESS: Sorry, I'm not sure I understand the question.
BY MS. BRANSCOME:
Q Sure.
Are there examples where the public health policy is actually, for instance, more protective than the science might support because the public health agency is exercising an abundance of caution?
MS. PARFITT: Objection. Form.
THE WITNESS: I -- I believe so. I mean, I've not done any kind of survey of how public health policy in, you know, Sweden over Argentina or everywhere -- you're talking about generally in the world public health or are you

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talking about United States or -- but I -- I imagine there are instances like that, and I think there is a strand in public health to be precautionary in developing policies. But I'm not sure it's universal. I just don't know.

BY MS. BRANSCOME:

Q You have a References section in your report. It begins at page 109, if you need to refer to it.

How did you maintain all of the documents that are identified under that list? It's quite voluminous.

A So let me --

Q And by that, I mean did you keep hard copies? Do you keep electronic copies?

A Okay. So the first thing I'll point out is that I deliberately didn't call it a reference section. You'll see that it's called a Bibliography.

Q Could you turn to page 109 in your report.

A That -- that's where I am.

Q Could you turn to the page right before that.

A Oh. Ah, yes, I see that.

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Q What is the page -- you have that as page 108?

A Yes, I have that page with the word "References" on page 108. Section 16.

Q Perhaps we could check at the break. My page numbering got off of yours at some point.

A Okay.

Q But in any event, you do have a Section 16 that's titled "References," correct?

A Yes. Yes, I do. I do.

Okay. My -- my conscious volition was to call this a bibliography, and the word "references" got in -- into the heading of this section.

And the reason for that distinction is that I have not -- not everything that is listed is referred to in the text of my report. So technically speaking, a reference section should be those materials that you refer to in your report. And this is not what I have here. And that's why I -- consciously I wanted to call this a bibliography, and somehow the word "references" got -- when they -- when we were compiling it -- anyways.

Q Okay. So my question again --

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A So, yeah, yeah.

Q -- Dr. Siemiatycki, is how -- how do you maintain all of the documents that are listed in your reference section? Do you main hard copies? Do you keep electronic copies?

A It's a bit of a mix and match of electronic and hard copies. And these are all the materials that were collected over the years, you know, I would say from the beginning of my involvement in the previous trial and so on, that concern talc and ovarian cancer, including materials that were provided by the lawyers and materials that we found.

I prefer to work with paper -- I prefer to read paper, but at a certain point, that gets overwhelming, and the material -- I can't tell you right now for sure that everything here is -- that I have it electronically in a file or that I have it in paper.

Q There are different sections of your References section. You have Bibliography Part A, B, so on and so forth. Who made the decision of which articles or documents fell into which of the -- of each category?

A I -- I guess I made it, but it was

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pretty self-evident. The material in Part A is material that is generally publicly available. It's easy to identify that. And the materials in Part B is material that is not publicly available. And all of that came from the lawyers, I think.

Q So that was going to be one of my questions. Did all of the materials identified in Bibliography Part B come to you from plaintiffs' counsel?

A Okay. So let me look through this quickly.

MS. PARFITT: Mm-hmm. Go ahead.

THE WITNESS: (Peruses document.)

I think so. I -- I think all of it came from plaintiffs' counsel.

BY MS. BRANSCOME:

Q I'm not going to ask you about all of these, but I noticed on page, at least in my copy, 135, maybe 134 on yours, there's reference to the Berg v. Johnson & Johnson case.

Do you see that?

A Yes, I see that.

Q What relevance is it to you as an epidemiologist evaluating the potential risk of ovarian cancer from perineal use of talc to look

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at the final jury instructions, judgment, and verdict form from the Berg case?

A I'm not sure. I relied on plaintiffs' counsel to decide what they thought it would be pertinent for me to be aware of. So these were documents that they thought would be pertinent for me to -- to be aware of, and I can't say why, and I don't remember -- frankly, I don't remember these documents.

Q As a scientist, do you typically consider jury instructions in forming an opinion with respect to risk of the use of a product in epidemiology?

MS. PARFITT: Objection.

THE WITNESS: Outside of a legal -- no, we wouldn't have access to it or -- no, it never comes up.

BY MS. BRANSCOME:

Q As you sit here today, can you come up with any reason why the jury instructions in a case would be relevant to you in evaluating the question you were asked to answer, which is whether or not there is a risk of ovarian cancer from the perineal use of talc?

MS. PARFITT: Objection. Form.

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THE WITNESS: You're asking me to speculate as to why plaintiffs' counsel would have sent this to me?

BY MS. BRANSCOME:

Q I'm asking --

A Is that what you're asking?

Q I'm asking if you, as the scientist whose name is on this expert report, can you think of any reason why that would be informative to you as a scientist?

A If I had it in front of me, I might recognize something in there that would make it relevant. But I -- I don't know what is typically in such jury instructions. I don't know how -- what the sweep is of those things. I'm just not sure. So I -- I can't answer the question.

Q As you sit here today, do you recall reading the final jury instructions from Berg --

A I don't --

Q -- v. Johnson & Johnson?

A I don't actually recall reading it.

Q Okay. So is there any way for someone reviewing your report to identify within the reference section, Part B, which of these documents you, Dr. Siemiatycki, found relevant and

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informative of your opinions?

A No. There's no way for anyone else to know that.

Q Okay. Did you ask plaintiffs' counsel for specific company documents, using that term loosely, to refer to documents that are kept internally within the various companies at issue in this litigation?

A I asked to be sent any information they had about the composition of talcum powder products, historically as well as currently, but actually mainly historic -- I was mainly interested to know what was the history of the composition of talcum powder products.

And so many of these materials that they sent me -- and I can't tell you which ones because I don't identify them with these obscure numbers, they don't mean anything to me -- but some of them dealt with internal company documents or internal reports that discussed different types of talc -- of powdering products, whether talc products or cornstarch products in different eras, when they started and when, what the market share was in different eras. So I was interested in that to get a sense of what were the women exposed to who

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were part of these epidemiologic studies.

Q Do you rely on any of the information that you obtained from documents in Part B of your reference list as a basis for forming your expert opinion in the MDL?

A No. No.

Q Have you viewed any of the deposition transcripts of the depositions that have been taken in the MDL?

A I have looked at a few of them.

Q And which deposition transcripts have you reviewed?

A Plunkett, McTiernan, is it? And Singh. Not fully -- not the entire transcripts, but portions thereof. Blount. I've seen excerpts from, is it, Hopkins? And a table from Pier, but not the full text. I didn't review the full text -- transcript. There may be one or two more, and I can't recall right now.

Q Okay. Focussing specifically on the expert deposition transcripts from the MDL, did you ask specifically for Drs. Plunkett, McTiernan and Singh's deposition transcripts?

A I didn't know who the other experts were, so I didn't ask for them by name. And I

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think that I asked if they could share with me transcripts of depositions and reports. So I also had some of the reports from those experts. I'm not sure I had all of them but at least some of them.

Q Well, what materials had you reviewed with respect to other experts in the MDL before you completed your report that we've marked as Exhibit 10?

A None. All of what I've just described was after I completed my report.

Q Did you rely on the work or opinions of any other expert witnesses in forming your own opinions in the MDL?

A No, I don't think I did.

Q So understanding that more depositions have been taken than just Drs. Plunkett, McTiernan and Singh, what specifically was your request to plaintiffs' counsel for which deposition transcripts you would like to see?

MS. PARFITT: Objection. Asked and answered, form.

THE WITNESS: I'm not sure if my request was to see the ones that they thought were most relevant to -- to me or whether I specifically

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said the epidemiology ones, but I think probably the former, because they sent me, for example, Dr. Plunkett, who is not an epidemiologist. Yeah.

BY MS. BRANSCOME:

Q Which expert reports have you reviewed that are from the MDL?

A I looked at the Plunkett report. I think I looked at the Singh and the McTiernan report. But just dipping into it, not -- not reading it fully. Yeah.

Q Any other reports?

A Not that I recall offhand.

Q Okay. The Blount transcript, the Hopkins transcript, and the table from Julie Pier's deposition, were those items that were provided to you by plaintiffs' counsel?

A Yes.

Q Did you request them specifically or were they simply given to you?

MS. PARFITT: Objection. Form.

THE WITNESS: I requested them to provide me with information that would help me to understand the issue. And one of the issues that has come up in the past few months was the issue of asbestos in talcum powder products, and I think

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I specifically asked at some point to be provided with information that would inform on the presence of asbestos fibers in talcum powder products.

BY MS. BRANSCOME:

Q Did you review that material before completing your MDL report?

MS. PARFITT: Do you understand the question?

THE WITNESS: Yeah.

Yes, I think I did look at that before completing my report.

BY MS. BRANSCOME:

Q When you say the asbestos is an issue that has come up in the last few months, what do you mean by that?

A Well, my understanding back in 2016, '17, was that while asbestos had been detected in talcum powder products as far back as the '70s -- 1970s, there was an industry directive or promise or instruction that they would somehow get rid of the problem of asbestos contamination.

Q And what was your basis for that understanding?

A I guess things I've read, and possibly in some of the company documents, possibly in

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publications. I think there have been various publications that have said so that have -- and I can't right now point to those, but that for the last 10 or 20 years have said that asbestos contamination may have been a problem up to the 1970s, but that the industry has basically managed to eliminate that contamination. So I've read that, and it seemed to be repeated often enough that I came to take it as a fact.

And then I received some -- I guess I received some reports from plaintiffs' counsel of some new studies carried out more recently in the -- by Longo and his team, and some others, put in question whether asbestos fibers were present in talcum powder products. And so this caused me to revisit that whole thing.

My opinions offered in 2016, '17, about talc and ovarian cancer were premised on the assumption that whereas there may have been some contamination up to the 1970s, it was basically a nonissue after the 1970s. So the opinions I expressed in -- in 2016, '17, were independent of any hypotheses about asbestos in talc.

When I saw the reports from Longo and maybe others in the fall -- I think it was in the

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fall of 2018, I specifically asked counsel to provide me with other information that they had, and I made a point of saying, you know, Are there studies that contradict these -- is there evidence that contradicts these evidence -- these claims of asbestos contamination? And they sent me some material at that point.

Q Okay. The work that Dr. Longo had conducted with respect to analyzing talcum powder products, to your knowledge, has that ever been published?

A I'm not sure. I -- to my knowledge, no, but maybe it has been. I don't know.

Q Okay. What were you -- when you referred to the study that Dr. Longo conducted, what -- are you referring to the work that he has done in connection with litigation on behalf of plaintiffs' counsel?

A I'm referring to a few reports that I think are dated or -- not -- 2017, 2018. I guess they're connected to litigation, but I'm -- I'm not absolutely certain of that. But those are -- that's what I'm referring to.

Q Separate and apart from your role as an expert witness, when you're evaluating a

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scientific question, do you typically consult expert reports that are generated for purposes of litigation?

MS. PARFITT: Objection. Form.

THE WITNESS: I would -- if I had access -- I mean, usually we don't know about such reports if we're not in the litigation process. So it's a hypothetical question, I guess. It -- it just doesn't come up in reality that I would be looking at carcinogenicity of diesel engine emissions, and I would have access to reports produced in litigation that are not published. I -- I don't know that I -- I wouldn't have access to such information unless I was part of the litigation. But...

BY MS. BRANSCOME:

Q Okay. When you're evaluating scientific literature, do you place a different amount of weight on a study that has been peer reviewed as compared to one that has not?

A Yes, it's one of the considerations.

Q Okay. And --

A There -- there are many considerations that I weigh, including my knowledge of and evaluation of the skill and reputation and quality

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of the investigators. I know many of the people in the area that I work in, and I can -- often have a gut feeling about the quality of their work.

Q Do you know anything about Dr. Longo's qualifications such that you could render an opinion about the quality of his work?

A It's in a different area than mine, so the answer is I -- I couldn't render an opinion about it.

Q When you asked for evidence that might contradict the work that Dr. Longo had done in connection with litigation, what specifically were you provided by plaintiffs' counsel?

A I'm sorry, without digging around and looking at e-mail exchanges, offhand I can't tell you. I was provided with a batch of -- of documents. I can't remember how many were on one side or the other side. I remember there -- well, in my report I refer to a few pieces of evidence that -- yes. So -- can I -- well, on page 30 in my copy --

Q Okay.

MS. PARFITT: Why don't you give the category, the title.

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THE WITNESS: Oh, the -- so it's in Section 5.3.2, "What were women exposed to in body powders?"

BY MS. BRANSCOME:

Q Were you provided, for example, with the expert reports generated by the expert retained by Johnson & Johnson and Imerys to rebut Dr. Longo's report?

A Can you give me the author's name or --

Q Sure. Were you provided any reports by Dr. Matthew Sanchez?

A I don't recall. I don't recall that.

Q Are you offering an expert opinion about the contents of any of the talcum powder products sold or manufactured by Johnson & Johnson?

A I only take note of what has been provided in the various documents I have access to.

Q What does that mean?

A It means -- can I read the sentence? Basically, I think it summarizes what I mean. And I'll start -- so I'll start on the sentence that on my copy is on the bottom of page 29, still in that Section 5.3.2.

"So representatives of the industry have

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claimed that talcum powders were free of asbestos fibers since the 1980s" -- and there are a couple of references there --

MS. PARFITT: Read them.

THE WITNESS: "Hopkins 2018, Pier 2018. -- "but this assertion has increasingly come under doubt as a number of labs have reported finding asbestos fibers in talcum powder products." And it references Blount, '91; Paoletti, '84; Gordon, 2014; Longo, et al., 2017 and 2018; Blount deposition, 2018; Pier deposition, 2018.

"These various studies that have reported finding asbestos in historic talcum powder samples have been challenged by other reports that failed to find meaningful amounts of asbestos in historic talcum powder samples." And the two citations are CIR 2013 and Anderson 2017.

BY MS. BRANSCOME:

Q So what I'm trying to understand, Dr. Siemiatycki, is what role this information plays in your opinions, if any.

A Not much. You know, I would say that the -- my opinions about the association are driven by the strength and consistency of the

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epidemiologic evidence. And this information about asbestos contamination of talcum powder products would be capable of moving the dial in the direction of increasing my belief that there is a causal assoc- -- a causal relationship, if it is demonstrated that there were in fact asbestos fibers contaminating.

So if it is shown that they are present, that would increase my level of belief. If it is not shown, if it is not demonstrated, it would not detract from my finding based on the epidemiologic evidence. It could move the dial in one direction. It wouldn't move the dial in another, because there -- there are different conceivable ways that talcum powder products could increase the risk of ovarian cancer. This is one. I'm not capable of adjudicating whether this one is correct or not.

Q So as you sit here today, Dr. Siemiatycki, do you have an opinion to a reasonable degree of scientific certainty that there are in fact contaminants like asbestos or heavy metals in Johnson & Johnson's talcum powder products?

MS. PARFITT: Objection. Form. Asked

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and answered.

THE WITNESS: You know, I would say the sentences that I read summarize my opinion on that question.

BY MS. BRANSCOME:

Q So in your opinion, is it -- is it a question for debate in the scientific community at the moment?

MS. PARFITT: Objection. Form. Misstates his testimony.

THE WITNESS: It's not an area in which I feel confident to pronounce that the issue has been resolved or not.

MS. BRANSCOME: Is now a good time for a break? I don't now how long --

MR. TISI: We've been going about an hour and 25 minutes.

MS. PARFITT: We have lunch at 1:00, and I don't think it's here.

(A discussion was held off the record.)

MS. BRANSCOME: We can go off the record.

THE VIDEOGRAPHER: This ends disc number in the deposition of Jack Siemiatycki. We're going off the record at 12:42 p.m.

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(Lunch recess.)

THE VIDEOGRAPHER: This begins disc number 3 in the deposition of Jack Siemiatycki. We're going back on the record at 1:46 p.m.

BY MS. BRANSCOME:

Q Good afternoon, Dr. Siemiatycki.

Did you have a chance to look at the various subjects we were going to return to after the lunch break?

A I did.

Q Okay. So we'll take them one at a time.

A Yes, please.

Q Let's start first with, did you identify the document that you had been provided by plaintiffs' counsel that you said you took out all but about 20 pages that you found relevant?

A Right. So I -- I think I mentioned the IARC monographs as being two of them, and I think the third one was the Reference Manual on Scientific Evidence. There was a huge pack of pages that were sent to me, and I took out most of them, but I retained some that I thought were relevant.

Q What portions of the Reference Manual on Scientific Evidence did you retain?

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A I think it was the Epidemiology section and maybe the Statistics section.
Q All right. During the break, you were also going to check which of the epidemiological studies that you included in your meta-analysis.
Did you or someone at your direction independently calculate an odds ratio or relative risk figure that was not published in the report itself?
A Sorry, what? That was not published in the original report. So I'm not sure. The answer is in the time I had available, I couldn't really identify anything like that, and I'm not sure if that occurred at all, and it -- the impact of that, if -- if it had occurred, would have been negligible.
Q If --
A It would have meant -- I'm sorry. It would have meant that most likely I added -- I put together a two-by-two table by aggregating across two or three or four levels of exposure. If -- if it had happened, I think that's what would have happened. And the impact of that would be to produce an odds ratio estimate that is not adjusted for the covariates that they adjusted for

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in their analysis by the categories of dose or whatever they adjusted for.
Q Is there any way by examining your 2018 report and the addendum that an outside reader could determine which studies, if any, were subject to this independent calculation?
A So the one thing I didn't check during the break was whether there's a note in the addendum, and it would take me a while, I'd have to go through each study and see if there's any notation in the margin that would indicate that this was done. So I -- I -- I'm not sure of the answer to your question.
Q If an adjustment like that or an independent calculation had been done, would it be your expectation that a notation would have been made in the addendum?
A Yes. Yes.
Q All right. Did you look at anything else over the lunch break?
A Well, we looked to see -- the page -- pagination discrepancy between the different versions, and I think Ms. Parfitt could fill you in on -- or maybe she has. I don't know.
MS. PARFITT: No. No, I haven't. I

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think what it is, we've got the signature page on the one report, and then the one he has in his binder appears to not have a signature page on it, and the font seems to be -- when the signature page was put in, the font was slightly larger, which sort of throws off the page numbers. Same report.
MS. BRANSCOME: So what I would --
MS. PARFITT: Single --
MS. BRANSCOME: -- request so that we keep the record clean going forward and not every question has to say page 108 in mine and page 107 in your copy is that we actually mark the version of the report that has been produced to us as Exhibit 11 -- well, let me just, Ms. Parfitt, would you be comfortable marking his copy as Exhibit 11 and switching them and putting the new clean copy as Exhibit 10? I'm only thinking that there are many prior questions --
MS. PARFITT: Sure, I'm fine with that.
MS. BRANSCOME: -- that refer to his report --
MS. PARFITT: As long as his --
MS. BRANSCOME: -- as Exhibit 10.
MS. PARFITT: Yeah, and just so the

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record is clear, and what appears to have happened is there was a signature page that was put on the report to represent the matter was filed in the United States District Court, the District of New Jersey, in light of the prior report that was in a state court, and that has thrown off not only the page numbers but I think even it might have been a different font.
Sure, so we will put on --
THE WITNESS: So do you want to modify the -- this?
MS. PARFITT: Sure. I think what we're going to do is the one that Dr. Siemiatycki has brought will be now Exhibit 11, and the one that's in -- on the thumb drive and --
MS. BRANSCOME: It is tab 3 in the binder in front of you will be the correct Exhibit 10.
MS. PARFITT: And this will be Exhibit 11.
MR. TISI: And Exhibit 11 will be his copy, the one that he brought.
MS. PARFITT: And this will be 3 -- 3, correct?
MS. BRANSCOME: 11 -- I mean 10. It's

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tab 3.
MS. PARFITT: 11 -- 10. Tab 3, correct.
(Exhibit No. 11 was marked for identification.)
BY MS. BRANSCOME:
Q So, Dr. Siemiatycki, can you confirm that Exhibit 10 is a complete copy of your report that was submitted in the MDL? It is a clean copy and does not contain any annotations.
A Yes.
Q Can you also confirm that what we have now marked as Exhibit 11 is the copy of your MDL report that you brought with you here today? It does contain handwritten annotations and the page numbers are just slightly misaligned.
A Yes.
Q Okay. So if you could, in Exhibit -- oh, there was one other --
A There was one other, and -- and there's another -- yet another one that I -- a correction to be made, a small one.
So do you want to point out what that --
Q Yes. So, Dr. Siemiatycki, do you have any corrections that you would like to make to your report at this time?

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A So the one outstanding one that we had highlighted -- or we've gone through the three of them.
MS. PARFITT: 45.
THE WITNESS: Have we --
MS. PARFITT: No, 45. Page --
MR. TISI: No, 47. 45.
MS. PARFITT: Page 45. Excuse me, it's 47.
THE WITNESS: Oh, yes, that -- the question of whether that sentence should refer to Berge or Terry on that page. It's Berge 2018, not Terry. I was right the first time.
MS. PARFITT: Oh, and it is page 45, just for the record. It is not 47. That was the first correction is on page 45.
THE WITNESS: In this version.
BY MS. BRANSCOME:
Q So just to be clear, Dr. Siemiatycki, on the third line of page 45 of Exhibit 10, the reference to Terry 2013 in the sentence beginning with the word "while" should in fact be Berge 2018?
A Yes.
Q Do you have any other corrections you would like to make at this time?
A Yes. I'd like to make one -- oh, yes. Well, page 72 in this version.
MS. PARFITT: Just refer to the exhibit number, so 11.
THE WITNESS: Exhibit 11, page 72, Table 2. Table 2 of the report.
BY MS. BRANSCOME:
Q What is the correction you would like to make?
A The correction is -- there's a column called "Included in main meta-analysis," and I think in your copy, as in mine in this version, there are a bunch of question marks. In the original Word document that I submitted, these were not question marks. They were tick marks, checkmarks. And somehow in the translation of Word to PDF, this -- the tick mark -- the tick marks got changed to these funny little question marks. So they should all be tick marks.
Q Are there any other corrections you would like to make to your report?
A Not that I'm aware of at this time.
Q Okay. So if you could turn to Exhibit 10 -- which is in front of you there -- if you could turn to your Conclusion section. It should be on page 69.
A Yes.
Q You state in the second paragraph below the Conclusion section that: "Based on the totality of the evidence, it is my opinion to a reasonable degree of scientific certainty that the perineal use of talcum powder products can cause ovarian cancer."
First, did I read that correctly?
A Yes, you did.
Q Does that conclusion accurately summarize your opinion in this case as to whether or not perineal use of talcum powder can cause ovarian cancer?
A Yes, it does.
Q You state that your opinion is to a reasonable degree of scientific certainty, correct?
A Correct.
Q Is that a phrase that you have ever used in a scientific publication?
A I don't think so.
Q Why did you use it here?
A I've seen this phrase used in all of the

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expert opinions in the legal cases that I've seen, and I inferred that it's a -- a formula that is de rigueur in legal communications for this sort of thing.

Q When you say "to a reasonable degree of scientific certainty," what do you mean by that phrase?

A So my -- you know, I think somewhere else in the document, I -- I phrase it in a way that I'm comfortable with, which is a way that also is sort of derivative from my understanding of legal jargon and precedence. I think that it's more likely than not that there is a causal relationship.

Q You anticipated where I was going with my question. Do those two sentences mean anything different to you?

A No.

Q What is your understanding of "more likely than not"?

A From a strictly mathematical point of view, it implies that I feel that there's greater than 50 percent probability that this thesis is true. And I wouldn't put a more quantitative meaning onto it.

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Q Is your opinion that perineal use of talcum powder products can cause ovarian cancer, is it specific to a single brand or manufacturer of talcum powder?

A No, it isn't.

Q Why not?

A Because as I understand it, the epidemiologic evidence that supports the thesis of a causal relationship is derived from evidence among women who used all types of talcum powder products that were available in their consumer area of purchase of these products. And whatever was the frequency distribution of different manufacturers and types of powdering that were available in the consumer -- various consumer markets were the types that lead to the overall inference about causality, and there's no way for me to parse out which particular manufacturer would have been more or less responsible for any of this.

Q If in fact, and we're just talking hypothetically, the biological mechanism by which some talcum powder products can cause ovarian cancer is related to a contaminant in that talcum powder product, does the epidemiological evidence

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that exists today enable a scientist to parse that out?

MS. PARFITT: Objection. Form.

THE WITNESS: I'm not sure I understand the premise of the question, the "if" part.

BY MS. BRANSCOME:

Q Okay. So if the biological mechanism by which a talcum powder product can cause ovarian cancer is because of a particular contaminant in that talcum powder product, but that contaminant does not exist in all talcum powder products, would the epidemiological evidence that exists today allow you to see that distinction?

MS. PARFITT: Objection. Form.

THE WITNESS: The epidemiologic evidence as -- as it exists today would not allow one to parse out anything about the particular manufacturer, the particular product, if I understand your question correctly.

BY MS. BRANSCOME:

Q And so therefore, the epidemiological evidence as it exists today does not have a level of detail by which someone reviewing that data could determine if there were different contaminants present in different talcum powder

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products that were used by individuals who developed ovarian cancer --

MS. PARFITT: Objection. Form.

BY MS. BRANSCOME:

Q -- correct?

MS. PARFITT: Objection. Form.

THE WITNESS: May I read the --

MS. PARFITT: Yes, you can.

BY MS. BRANSCOME:

Q Of course.

A Just to make sure I understand.

(Peruses document.)

So I -- I don't think that the epidemiological evidence would allow you to attribute causality to a specific type or -- or not. If one knew -- if part of your hypothetical is the knowledge of what the constituents were of different products used in different markets, and the biological mechanism has been established to a high degree of certainty, there might be some room for making inferences about this. But that seems like a tenuous possibility.

Q But you agree that the current epidemiological evidence as it exists does not enable someone to distinguish between brands of

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cosmetic talc products, for example?
MS. PARFITT: Objection. Form.
THE WITNESS: I don't think it does.
BY MS. BRANSCOME:
Q Does -- is your opinion that perineal use of talcum powder products can cause ovarian cancer, is that limited to talcum powder products manufactured during a certain time period?
A The evidence as it exists today pertains to products manufactured over half a century, roughly speaking, so I don't think that there's any way to link it to products manufactured in a particular time period.
In -- in answer to that question, actually, and to the previous one, hypothetically, one might imagine looking at the different study -- the 30-odd studies that have been carried out in different communities and different cities and different countries, and if one could obtain reliable, reasonably precise and time relevant information on market shares of products in different markets at different times, that could give a first approximation of whether certain company products are more closely linked to the excesses that are seen in the epidemiological

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studies.
Q The application, though, of a market share analysis to the users of talcum powder products, if you're looking at causality, would require that the individuals who developed ovarian cancer had purchased their talcum powder according to the market share, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: Approximately, yes.
BY MS. BRANSCOME:
Q So, for example, if one type of talcum powder product or one time period of talcum powder product is the only type that actually causes ovarian cancer, so all of the positives were derived from those users, you -- you could not determine that simply by applying market share, for example?
MS. PARFITT: Objection. Form.
THE WITNESS: That -- that's true, except in the circumstance that market share were very, very high in most of the communities that have been investigated. So if one company produced 90 percent or 85 percent or something of the product in a certain area -- that was consumed in a certain area, and there's an excess risk of

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ovarian cancer in that area, it would be improbable that the product of that company were not part of the responsibility, but one of the companies that produced 5 or 10 percent of the market share.
BY MS. BRANSCOME:
Q Okay. But as you sit here today, based on the analysis that you have done, you are not able to draw an opinion specifically about an increased risk of ovarian cancer that is tied to a particular brand or a particular time period, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: That's correct, in part because I don't have data on market share at different times and in different places.
BY MS. BRANSCOME:
Q Okay. In forming your opinion that perineal talc use can cause ovarian cancer, did you reach an opinion about how much talcum powder is needed to cause ovarian cancer?
A No.
Q Is there an amount of talcum powder that can be used perineally without increasing a risk for ovarian cancer?

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A So let me go back to the previous question, and clarify what do you mean by amount? Do you mean like the amount in grams? The amount in number of applications? The amount in number of day -- days on which the powder is applied? These are all different metrics of exposure, and the answer might depend on what kind of -- you know, we're starting with these studies. There are now some hints about the dose-response relationship and what kind of levels of exposure in terms of number of applications in use, observable excess risks.
Q So let me ask it this way: Did you calculate how much talcum powder is needed to cause ovarian cancer in any of the forms, be it frequency of application, the amount in grams that was used?
A I --
MS. PARFITT: Objection. Form.
THE WITNESS: I did not carry out such a calculation. I'm -- my emphasis was on determining whether there's a dose-response relationship. Going beyond that might involve trying to quantify the dose-response relationship to the extent of determining what the shape of

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such a relationship is and how the curve looks, whether there's a threshold effect, and so on. But I don't think there's enough data now to be able to make such estimates.

BY MS. BRANSCOME:

Q Can you rule out the possibility that there is a threshold below which perineal use of talc presents no risk of ovary -- of ovarian cancer?

MS. PARFITT: Objection. Form.

THE WITNESS: No, I -- I don't think -- I can't, and I don't think it's possible to do that with most carcinogens. It's -- it's an extremely difficult and controversial issue of how to detect sort of a minimum level of exposure produces a carcinogenic effect.

BY MS. BRANSCOME:

Q In your view, has a dose-response relationship for the perineal application of talc and the development of ovarian cancer been established in the scientific literature?

A My view is that the data are certainly compatible with the notion of a dose-response relationship. It -- it trends in that direction of that conclusion. It's not definitive yet.

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It's not definitive. But I believe the bulk of the evidence, especially from the Terry study and partly from, I think it's the, Schildkraut study, which are the most powerful ones for that question, but certainly the Terry study is by far the most important one, does tend to indicate dose-response relationship.

Q Is the data that exists today also compatible with no dose-response relationship?

MS. PARFITT: Objection. Form.

THE WITNESS: Yes. It could be -- in other words, it could be a chance finding. Is -- that's what you're saying. I think it's unlikely, but it's -- it can't be ruled out.

BY MS. BRANSCOME:

Q Are you offering an expert opinion that the inhalation of talc increases or presents any risk of ovarian cancer?

A I -- I don't have an opinion on -- on that. No.

Q Aside from your participation in the IARC panel in 2006 and the Langseth article on 2008, has all of your work on talc and ovarian cancer been in connection with litigation?

A On talc and -- sorry, work on talc and

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ovarian cancer, is that the question? Almost. But the one qualification I would make in answering that question is that I have a colleague who started working with -- in my academic department about 12 years ago, and she was interested in ovarian cancer as a topic of research, and she wanted to organize a case-control study of ovarian cancer in relation to various factors, and she asked me to kind of mentor her -- she was just starting out -- mentor her in getting grants, in setting up the study, and this sort of thing, and this is what I did with her.

So I worked on grant applications with her on some aspects of setting up her study, and that has been going on now for -- I don't know -- I think since 2010 maybe that she started. So -- but that has not -- I've been what we call a coinvestigator on that project, not a principal investigator.

But apart from that, the next stage in my involvement with talc and ovarian cancer was in the litigation.

Q What is your colleague's name?

A Anita Koushik.

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Q If you had to give me your best estimate, how many hours total have you spent assisting her with the case-control study?

MS. PARFITT: Objection. Form, misstates his testimony.

THE WITNESS: It's very hard to answer that. I mean, ten years ago discussions over coffee about studies and how to write grant applications and reviewing and revising and so on. I -- I don't -- not a trivial amount and not an overwhelming amount.

BY MS. BRANSCOME:

Q When was the last time that you spent hours in connection with that case-control study?

MS. PARFITT: Objection. Form.

THE WITNESS: There was a manuscript that came -- a publication that came from that study. It was -- the study was only completed in the field, the data collection, around two years ago, and spending a year cleaning data and so on, and then starting to analyze it.

And there was an analysis of reproductive and hormonal factors in relation to ovarian cancer, and I helped her review and revise that manuscript. That would have been a year and

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a half ago or so, and I don't know, maybe I spent three or four days on it at the time.
BY MS. BRANSCOME:
Q Did that study reach any conclusions with respect to a potential link between perineal use of talc and ovarian cancer?
A The talc information was collected in the questionnaire and has not yet been analyzed.
Q Other than what we just discussed with respect to the case-control study and then your work in connection with the IARC panel and the Langseth paper, have you ever done any original research on the association between perineal talcum powder use and ovarian cancer?
A No. No, I haven't.
It's common -- it's common for me to be asked to review information on which I have not directly worked. You know, topics. You know, I recently was asked by the government of France to evaluate a problem of possible cancer risks related to a pesticide that's used in the banana industry in Guadeloupe and Martinique. I've never studied that pesticide and I've never been to Martinique. But the kind of expertise that I have can be applied to studying different sorts of

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problems.
Q You have not published the meta-analyses that you -- meta-analysis you performed in connection with the MDL, have you?
A No, I haven't.
Q Have you ever published in any peer-reviewed article the opinion that the perineal use of talcum powder can cause ovarian cancer?
A I -- I've never had occasion to opine about this in any publication, and one doesn't just announce to the New England Journal of Medicine that you want to, you know, write an article about opining about something like this. There has to be some sort of platform basis of research evaluation and so on.
And my involvement in this case might lead to such a publication, but in the past I would have not -- I had no reason to publish or to try to publish such an opinion.
Q But you had formed an opinion with respect to the perineal use of talcum powder and an increased risk of ovarian cancer at the time that you published your report in October of 2016.
And by "published," I mean within the litigation context, correct?

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A That's correct.
Q Have you done anything since 2016 to publicly announce your view that the perineal use of talc can cause ovarian cancer?
A No, I've not had really an opportunity. And in a way the -- the publication by Berge, which appeared as a -- after I completed my meta-analyses, and they -- they kind of beat me to the punch with one type of publication output that I might have produced. So I'm thinking about different ways of communicating my results and my opinions, but mainly my results.
I mean, the other part of the answer to -- another part of the answer to your question is that I'm not particularly a fan of individual scientists going into press with opinions before some sort of consensus starts to appear. I mean, you can -- you can publish hypotheses and ideas, but proclaiming conclusions is something that should come later in the scientific process. I mean, I -- I think it's best if IARC or an agency like IARC would take on that role, and that would be my hope actually.
Q In your opinion, has consensus formed that peri- -- perineal use of talc can cause

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ovarian cancer?
A I think among people who have reviewed the evidence who -- sort of competent scientists who have reviewed the evidence, I think there's starting to be a ground swell of consensus about it. You know, I've never done a survey, so I can't say if it's majority or minority.
If your denominator is all medical researchers, then the answer is, well, most of them have never heard of this issue, so it's not -- they wouldn't be susceptible to holding such an opinion. But among the people who have reviewed, are familiar with the issues, I think there's certainly a much higher level of receptivity to this thesis than there was ten years ago.
Q Has a consensus been reached that perineal use of talc probably causes ovarian cancer?
MS. PARFITT: Objection. Asked and answered. Form.
THE WITNESS: I can't answer that question. I -- it's too -- are you trying to make the distinction between probably and -- I -- so --
BY MS. BRANSCOME:

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Q Well, what do you understand the phrase "can cause ovarian cancer" to mean?
A Well, it's a synonym with "is a risk factor for" or -- that's how I understand it.
Q All right. And is that in your mind the same as "it probably causes cancer"?
MS. PARFITT: Objection. Form.
THE WITNESS: "It probably can cause," is that what you said, or "probably does cause"?
BY MS. BRANSCOME:
Q Probably does cause.
A So I don't think any risk factor can be described as -- in a way with the wording "does cause." You know, smoking does not cause lung cancer. It can cause lung cancer when there's a constellation of other favorable circumstances. You know, this is part of multifactorial causation of disease. So, you know, each factor in itself is not the cause, but it's part of a constellation of factors that together can cause the disease. So each of them can cause the disease.
Q So -- you -- you state in your report that -- let me see if I can get the exact language.
And perhaps you can get me there more

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quickly. You talk about that now you would give a different rating under the IARC standard.
Ah, here we go. Page 67 in your 2018 report. You state: "It is now my professional opinion based on the totality of the evidence, that to a reasonable degree of scientific certainty, the causal relationship between perineal talc powder exposure and ovarian cancer is," quote, "probable."
Did I read that correctly?
A You did.
Q Do you hold that opinion?
A Yes, I do.
Q What do you mean when you say a "causal relationship between perineal talc powder exposure and ovarian cancer is," quote, "probable"?
A I mean it's more likely than not.
Q Okay. Has a consensus been reached in the scientific community, understanding we're looking at those who have an interest in this issue, been reached that the causal relationship between perineal talc powder and ovarian cancer is probable?
MS. PARFITT: Objection. Form, asked and answered.

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THE WITNESS: I don't know -- I haven't carried out a survey among people. I don't know whether a consensus has been reached. I don't know what proportion of that community would subscribe to this point of view or not.
BY MS. BRANSCOME:
Q Okay. Setting aside conducting a survey of individuals in the scientific community, would you say that the scientific literature reflects a consensus that the causal relationship between perineal talc powder exposure and ovarian cancer is probable?
MS. PARFITT: Objection. Form.
THE WITNESS: I think the scientific literature supports that conclusion. I'm not sure that it reflects it.
So there's kind of a lag period between the production of research findings and the consens- -- a consensus building around it and being expressed in print. You know, if we take sort of the classic smoking and lung cancer historical example, evidence was accumulating rapidly in the 1950s. There were several studies through the 1950s and early 1960s, and it was only in 1964, so many years after some of this evidence

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had been published and been accepted by many scientists, but rejected by others -- there was still controversy around it -- that the Surgeon General's report reflected and created a consensus.
BY MS. BRANSCOME:
Q So in early 2019, are we still in the lag period or the period in which the production of research findings is still behind consensus building in the literature?
MS. PARFITT: Objection. Form, misstates his testimony.
THE WITNESS: Does that mean I should answer or --
MS. PARFITT: I'm objecting. I said it misstates your prior testimony.
THE WITNESS: Okay. Sorry. Let me read the question again. (Peruses monitor.)
So I can't point to hallmark publications analogous to the Surgeon General's report for smoking and lung cancer that would reflect such a bend in the road kind of general perception of the talc ovarian cancer issue. It doesn't mean that the evidence isn't there, but the process of recognizing and generalizing and so

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on is not -- has not been achieved yet.
BY MS. BRANSCOME:
Q Okay. Have you ever given a lecture, either to students or to other scientists, in which you have presented your view that the perineal use of talcum powder can cause ovarian cancer?
A I have to my students -- I mean to the students in my department. I teach epidemiologic methods. I don't teach about ovarian cancer. I don't teach about talc. That's not what I'm paid to do. I'm paid to teach about the methodology and the conduct of -- and the interpretation of epidemiologic -- and I've used the talc/ovarian cancer as an example and walked my students through the evidence. So, yes, I have.
Q When did you start teaching that as part of your epidemiological methods course?
A Probably two years ago. As soon as I started gathering the information and synthesizing it, so two -- two or three years ago.
Q Other than presenting to your students your analysis of talc and ovarian cancer as an illustration of an epidemiological method, have you presented your opinion that perineal use of

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talcum powder can cause ovarian cancer in any other context outside of litigation?
A No, I haven't.
Q Have you spoken with other scientists about the issue of whether perineal use of talcum powder can cause ovarian cancer? Setting aside your students.
A Yeah. Yes, I've spoken to -- to colleagues, friends over -- over coffee, over drinks at conferences, you know, what are you up to, what are you doing, and then describe my involvement in this case. And then we dig a little further into, Well, what -- what do you think, and so on. So I -- I have discussed it in that kind of format.
Q Have you ever spoken with any of the authors on any of the papers that you cite in your report about the potential link between perineal use of talc and ovarian cancer?
A I don't think so. I can quickly scroll through the list to see if anything jogs my -- yeah -- no, let me --
Q If you can do that quickly, we could do it now, or we can save that for the next break.
A It will take just three minutes, I

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think. (Peruses document.)
Q Okay.
A No, I've never spoken to any of them about -- I -- I crossed paths with Dr. Cramer in Los Angeles for a -- you know, we were in the same hotel. He was leaving, I was coming, that sort of thing, but I don't think we had any substantive discussion, and I can't -- I know some of the others, but I've never spoken to them about this issue.
Q Do you know personally or professionally any of the other plaintiffs' experts in the MDL?
A No, I don't.
Q You were chair of the working group -- the IARC Working Group that published the monograph on talc in 2006 -- or, well, that met in 2006, and then was subsequently published in 2010, correct?
A That's correct.
Q And there were roughly 20 members of that working group?
A I think so.
Q In 2006, you agreed with the IARC classification of, quote, "possible" describing the relationship between perineal talc use and

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ovarian cancer, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: That's correct. I could read the exact wording of what "to be" means, but that's the gist of it.
BY MS. BRANSCOME:
Q Okay. IARC has not changed its clarification of talc, and specifically with respect to the peri- -- perineal use of talc since it published the 2010 monograph, correct?
A Technically correct, but actually, what -- the correct statement is IARC has not evaluated talc since 2006 -- has not reevaluated. So there are no changes made to IARC evaluations except through a formal complete reevaluation, and there has not been a formal complete reevaluation of talc since the 2006 meeting. So there's no opportunity for IARC to change anything in one direction or another failing another complete evaluation.
Q What, if you know, can initiate a formal complete evaluation of a constituent like talc?
A Well, it comes I think from different sources. I'm not entirely certain. I know that there is now a public process whereby public

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parties can write to the monograph program and make suggestions for chemicals to be evaluated. There are -- they get requests from governments. They get requests from groups of scientists. They have their own internal scientific staff that has its antenna out for different problems that arise, and they generally have sort of a five-year program of agents that they are going to evaluate in every -- in the next five-year period.

These things are not quick and easy to organize, and so there's a lot of lead time. There's a lot of, in a way, competition for agents to get onto the list to be evaluated. There are a lot of interested parties that would like the agent that they are exposed to or the "et cetera" to be evaluated. So the exact mechanics of how they make decisions, I haven't been involved in that process, but that's, roughly speaking, how it's done.

Q Have you ever submitted a request to IARC for them to conduct a complete evaluation of talc?

A Have I ever?

Q Have you since the publication of the monograph in 2010 submitted a request to IARC for

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them to conduct another complete evaluation of talc?

A I had a quick word with the director of the monograph program a few months ago, and I suggested it might be time for that. But I'm intending to submit a more formal request along those lines. So...

Q Okay. Who -- who specifically did you speak with a few months ago?

A The director of the monograph program is Kurt Straif, S-T-R-A-I-F.

Q And how did you have occasion to be speaking with the director?

A We're acquaintances, and I met him at a conference in August, I saw him when I was in Lyon in November at a meeting that he organized. So I've seen him a few times in the last six months.

Q When did you have this conversation with the director?

A I think it was in the summer.

Q So the summer of 2018?

A Yeah.

Q And what specifically did you discuss with him?

A I -- I think it might have been a one

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sentence -- you know, in the context of a conversation about many things, as we do when we catch up when we meet. What -- you know, what's on the agenda for the monograph program? By the way, I think talc might be an interesting thing to put on a list for you to consider. And probably the conversation ended -- that part of the conversation ended and moved on to other things. But...

MR. KLATT: Should we take a break?

MS. BRANSCOME: I understand the noise, but I -- I don't know that Dr. Siemiatycki was finished with his answer.

MS. PARFITT: We'll keep going. I didn't -- I was trying to keep a clean record for you. That's fine. Keep going.

MS. BRANSCOME: Well, we -- we can pause. I just was trying to let him finish his answer.

MS. PARFITT: We'll keep it paused here on the screen. Just a little bit more activity.

THE VIDEOGRAPHER: We will pause for a second. We're going off the record, 2:41 a.m. -- p.m.

(Pause.)

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THE VIDEOGRAPHER: We're going back on the record at 2:43 p.m.

BY MS. BRANSCOME:

Q When you spoke with the director of the monograph program for IARC last summer, did you inform him that you have been serving as an expert witness on behalf of plaintiffs in litigation involving talcum powder products and the claim that they cause ovarian cancer?

A I'm not sure if I told him at that time, but I certainly have told him since then.

Q When you were talking to him about the possibility of including talc in a formal, complete evaluation subsequent to the one that was done in 2006 and published in 2010, did you tell him anything about your opinions with respect to the likelihood that perineal use of talc can cause ovarian cancer?

A I don't think I did.

Q What did he say about -- if anything, about conducting a formal evaluation of talc?

A I -- I can't remember if he said anything about it.

Q Have you had any conversations with him other than the conversation you had last summer

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about IARC conducting another examination of talc and its potential carcino- -- carcinogenicity -- whoops, butchered that one -- about it's ability to cause cancer?

A No. I don't think I did.

Q Now, you said you have an -- you have the intention to submit something formal to IARC; is that correct?

A Yes. I've been thinking about it, and I -- when I have time, I'll look into the process.

Q What specifically would you request that IARC do at this time with respect to talc?

A Carry out an evaluation like they did in 2006 but with up-to-date data.

Q What data specifically do you think an IARC Working Group would need to consider that was not available in 2006? What are the key pieces of data that you think should be considered by a working group?

A So from an epidemiological database point of view, there have been a number of publications, as you know, since 2006, including some cohort studies, various case-control studies, various meta-analyses, a pooled analysis from the Terry group. All of that information bears on the

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evaluation of cancer risk. It -- it may or may not change the view of a working group vis-à-vis the view held by the 2006 working group, but there's enough new information there that it could potentially change points of view.

And in the mechanism area, I understand that there has been additional work on various possible areas of -- concerning the migration of particles around the body and how this might influence the -- the biological plausibility of such a -- a process. The possible role, roles of inflammation or oxidative stress. There have been developments -- there are new publications in those areas that might influence a new working group or a working group looking at it with new eyes.

For all of those reasons, I think it would be timely, and in any case, if a decision were made today to do this, such a meeting would probably not be held before 2022 or 2023 at the earliest. They have a horizon of priorities that they're working on. So -- and by then, there would likely be additional work that would be available.

So it's an area where I think there is

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sufficient growth in the information base that would justify it. And the question is whether there are other priorities -- that they have things with even higher priorities for them to look at.

Q We agree the perineal use of talc currently is classified by IARC as a Group 2B chemical, correct?

A Correct.

Q So the classification or the definition of a Group 2A chemical still applies when there is limited evidence of carcinogenicity in humans and then sufficient evidence of carcinogenicity in experimental animals, correct?

A Yes.

Q Has there been developments in the experimental animal data since the IARC Working Group evaluated the risks associated with the perineal use of talc in 2006?

A I'm not aware whether there has been. I -- it does not spring to mind. I can't think of any examples.

Q Now, I noticed in your report you have a description, it's on page 24, of the different categories that IARC might rate a chemical.

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Do you see where I am?

A Yes, I see where you are.

Q Okay. And there's a rating system that IARC uses that ranges from 1 to 4, correct?

A Yes.

Q That -- you have indicated here on page 24 on your report that number 4 is not a carcinogen. Is that accurate? Is that an accurate description of category 4?

A The wording is longer than that, but this is my potted version of what that longer version means.

Q The actual definition is that it is probably not carcinogenic, correct?

A Correct.

MS. BRANSCOME: Would now be a good time for a break?

MS. PARFITT: I think so. We can take a break. Thank you.

THE VIDEOGRAPHER: We are going off the record at 2:51 p.m.

(Recess.)

THE VIDEOGRAPHER: This is the beginning disc number 4 in the deposition of Jack Siemiatycki. We're going back on the record at

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3:27 p.m.
BY MS. BRANSCOME:
Q Good afternoon, again, Dr. Siemiatycki.
A Hi.
Q Do you still agree with the IARC characterization that the case-control studies evaluating a potential connection between perineal talc powder exposure and ovarian cancer are unusually consistent?
A Unusually -- they're very consistent. I'm not sure I would choose the word "unusually." Sometimes when 20 people write a document, everyone doesn't agree with every word, but they are very consistent.
Q Do you agree with the IARC determination that the excess in risk in those case-control studies is, quote, modest?
A That the what, the increase in risk?
Q Or the excess of risk.
A Yeah, the -- I mean, the terminology around strength of association -- weak, modest, strong, very strong, medium, et cetera -- it doesn't have -- there are no regulations. There's no epidemiologic handbook that says if a relative risk is in this range, you call it weak or

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moderate and so on and so forth.
So the term "moderate" -- actually, the terminology around strength of associations was probably most influenced by the smoking and lung cancer situation in the '50s and '60s where there were relative risks of ten approximately, ten times as high of risk for smokers as for nonsmokers of getting lung cancer, and that was considered a benchmark for strong associations. And it was not known then whether most carcinogens would fall -- most carcinogens that would be discovered later than that era would fall into the category, you know, of relative risks, around ten or around five or around two or whatever.
So the -- the use of the terms "strong," "medium," "weak" has kind of been -- what's the word? -- benchmarked, I guess, by the smoking-lung cancer association. And things that -- subsequently relative risks that were less than in that order of magnitude of ten or so where people didn't refer to them as strong because they were not as strong as smoking and lung cancer.
It has subsequently turned out that the level of relative risk for smoking and lung cancer is exceptional among known carcinogens, and that

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this -- there are not many that have such high relative risks.
I'm just giving you a bit of background because the terminology is controversial, and I know it plays into the case of how we -- how we characterize the associations around talc and ovarian cancer.
There are a lot of associations that are much less than -- with relative risks much lower than ten that are very well accepted as being causal associations. And so the idea that associations have to be, quote/un- -- quote, strong in the sense that the smoking-lung cancer association was strong is not really tenable any more. There are so many -- most known carcinogens don't have such strong -- don't have such high relative risks. So where you draw the line between strong, moderate, weak, and so on, is a kind of -- is a vague notion.
If you're asking me how I would characterize it or how it's characterized -- I'm not sure whether you want to go -- to ask how I would characterize it or how it's characterized by other people or --
Q So, respectfully, Dr. Siemiatycki, my

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question was, do you agree with the IARC classification of the increase in risk as, quote, modest?
A So there was no such classification. It was a word used in a sentence, I guess. There is -- they never classified the association as being strong, weak, moderate or whatever. It was part of a narrative about the -- the body of evidence.
Do I agree that -- yeah, I would use that term today.
I'm sorry if I digressed from your question.
Q You would agree that the point estimate of the meta-analysis that you conducted in 2018 that's contained in your report marked Exhibit 10 is actually lower than the point estimate that was reported in the Langseth 2008 study, correct?
A That's correct.
Q And the Langseth 2008 paper, the meta-analysis that you and your coauthors conducted resulted in a 1.35 relative risk, correct?
A That's correct.
Q And in Exhibit 10, your report in the

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MDL, the relative risk point for your 2018 meta-analysis is 1.28, correct?
A In the 2018 -- yes, that's correct.
Q Is it your opinion -- well, let me just ask you, what classification should perineal use of talc get with respect to ovarian cancer under the IARC scale?
MS. PARFITT: Objection. Form.
THE WITNESS: I -- I'm very reluctant to answer that question because it takes a lot of input from different disciplines to produce an IARC evaluation and then IARC classification. And I feel it's presumptuous for any one person from one discipline to take on that function.
What I can say is that in this situation, the epidemiologic evidence alone is sufficient to make the -- make me think that it's more likely than not that there is a causal association. How that proposition would feed into an IARC evaluation is something that would -- that a multidisciplinary group would need to work out, but I think there's at least enough evidence to say it's more likely than not.
BY MS. BRANSCOME:
Q Because you would agree that a work --

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an IARC Working Group, for example, if a former -- formal evaluation was done on talc, in order to classify talc as say a Group 2A, that working group would need to consider multiple lines of evidence, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: That's correct.
BY MS. BRANSCOME:
Q And simply the determination, if it were the case that the epidemiological evidence might support the conclusion that perineal use of talc more likely than not can cause ovarian cancer, would not by itself be sufficient for a Group 2A rating. Is that fair?
MS. PARFITT: Objection. Form.
THE WITNESS: The IARC classification was developed in the 1970s. It was not developed in order to fit into a template that can be used in the courtroom. So terms like "more likely than not" or, you know, whatever terminology would be used in a courtroom around this sort of thing does not fit perfectly on the IARC classification scale.
I understand why courts use IARC evaluations as an input to understanding

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causality, but it's not a one-to-one kind of relationship.
Now I've lost the thread. I'm sorry.
BY MS. BRANSCOME:
Q That's okay. I'm going to ask you the question again.
Simply the fact that the epidemiological evidence --
A Yeah.
Q -- may support a conclusion that more likely than not perineal talc use can cause ovarian cancer, that fact alone is not sufficient to result in a Group 2A classification of a chemical under IARC.
MS. PARFITT: Objection. Form.
BY MS. BRANSCOME:
Q Is that fair?
A It's fair -- in principle, it's a fair statement. My feeling is that if that occurred in a meeting, and if -- you know, in an IARC Working Group, the group is subdivided into four subgroups: Initially, an epidemiology group, animal experimentation group, other biological mechanisms, and then expose -- an exposure group.
If the epidemiology group came back, had

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a feeling that there likely -- it was more likely than not that there is a causal association, they have the prerogative to categorize the evidence as being sufficient or limited. And it's not clear how they would categorize the epidemiologic evidence. That would feed into the final evaluation.
Q So you would say, as you sit here today, based on what you know about the epidemiological evidence with respect to the perineal use of talc and ovarian cancer, it's not clear whether that would satisfy the criteria for sufficient evidence of carcinogenicity. Is that fair?
MS. PARFITT: Objection. Misstates his testimony.
THE WITNESS: For -- for a particular working group. Because the other particularity of the IARC process, as with other -- from high level scientific processes, is that it depends a lot on scientific judgment. There's -- there are guidelines for how to combine animal evidence and basic biology evidence in epidemiology, but all of these guidelines are just models of how the final evaluation might be determined.
Each working group is sovereign and can

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take the entire body of evidence and make a decision outside the -- the template -- the -- the typical template. So a working group could look at the evidence and decide is it Group 1, it's Group 2B, Group 2A, based on the totality of evidence.

In general, if the epidemiology is convincing, it would be Group 1 or Group 2A if it's convincing but not -- or let's say if it's -- if it indicates a risk but it's not definitive.

BY MS. BRANSCOME:

Q So you would say if the epidemiology indicates a risk but is not definitive, you think there's a possibility a chemical would be classified as Group 1?

MS. PARFITT: Objection. Form.

THE WITNESS: It depends how close to definitive it is. So if the feeling of the group is that it's almost certain on the basis of epidemiologic evidence, then they could classify it as Group 1, and they would classify the epidemiologic evidence as sufficient in that case.

BY MS. BRANSCOME:

Q Okay. On the scale of definitiveness, where would you place the evidence of the perineal

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use of talc and ovarian cancer as of today?

A Based on the epidemiologic evidence.

Q Correct.

A I -- I go back to more likely than not. Not -- not definite, but more likely than not.

Q Is it possible to have a situation where the epidemiological evidence is supportive of a causal association, but the group working on biological mechanism determines that there isn't a sufficient mechanism by which that chemical could have caused that outcome?

A That can happen.

Q And what would the explanation for an inconsistency like that be?

A It would require quite a high level of understanding of the mechanistic evidence.

So -- I -- I don't know if it has happened, so I'm -- I'm trying to think through memory whether I can think of any examples. I'm not sure that it has happened.

THE VIDEOGRAPHER: Excuse me, Counsel. The microphone just fell.

THE WITNESS: Oh, I'm sorry.

MS. BRANSCOME: That's okay. You just knocked off your microphone.

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(A discussion was held off the record.)

BY MS. BRANSCOME:

Q Do you remember what you were answering or should we --

A I prefer if -- I'm sorry. If you could ask again and --

Q Let me ask it a different way. Is it possible for a confounding variable to essentially infect all of the epidemiology on a particular -- looking at a particular causal relationship?

MS. PARFITT: Objection. Form.

THE WITNESS: It is possible.

BY MS. BRANSCOME:

Q Okay. If that were to happen and you see evidence in the epidemiology that shows a consistent increase in risk but there's the potential for a confounding variable, would it be important to look at the potential biological mechanism to see whether or not the agent might be causing the outcome?

A So the confounding factor is -- is a factor that could be captured in epidemiologic studies but hasn't been. Is that what you are alluding to? And the biologic -- but the biologic mechanism that you're referring to would involve

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that confounding factor or is this -- are you -- are you confounding "confounding" with -- with biologic mechanism issues?

Q Okay. Let me -- let me give you a specific hypothetical.

A Yes.

Q Okay. So let's say hypothetically, for example, recall bias --

A Okay.

Q -- affects the epidemiology related to looking at the causal relationship, and whether you agree with it or not, but we'll just say hypothetically that affected the epidemiology of talc use and ovarian cancer.

A Can I just interrupt for a terminological thing? So typically we don't refer to recall bias as a confounding factor.

Q Ah.

A We refer to it as a bias, a type of bias, but -- you know, that's just technical, but for the record, if we're going to be discussing this further.

Q I appreciate the clarification.

A Thank you.

Q Well, first of all, let me just ask you,

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is recall bias something that could affect the reliability of conclusions drawn from epidemiological studies that rely on recall to define exposure to the agent?

A Yes, it could, hypothetically.

Q Okay. Is recall bias something that potentially could affect the epidemiological studies of the perineal use of talc?

A Yes, theoretically, it could.

Q Okay. In situations where there is a potential bias or a confounding variable that has not been identified, how should epidemiological evidence be evaluated in comparison to the other categories of evidence that are considered, for example, by an IARC Working Group?

A Well, these things would typically be evaluated in a -- a nonquantitative way. You can't really quantify what is the potential impact of a confounder that you don't know about or that you haven't measured. It's kind of a theoretical thing.

And the same with -- with recall bias where there could be some evidence about it. And certainly when I reviewed the evidence on this topic, the possibility of recall bias was one of

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the main stumbling blocks to arriving at an opinion, as it was for the IARC panel in 2006. You know, we are all aware of that hypothetical possibility, and we think about whether something of that magnitude -- something like that could artifactually generate an appearance of a relative risk.

My own way of dealing with that was to look at the phenomenon of recall bias from the perspective of both my own research, which has mainly involved case-control studies, some cohort studies but mainly case-control studies, and research that I've read about, experienced, reviewed for journals, et cetera.

And if the phenomenon of recall bias were sort of a general across-the-board phenomenon that infects and in a way discredits all case-control studies -- interviewing cases, people who are sick people, interviewing people who are well and comparing the responses -- if this were an inherent systemic problem, what we would observe in general would be a plethora of fake excess risks. Because almost everything you would ask people about, whether it's smoking, alcohol consumption, physical activity, diet, workplace

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exposures, all -- you know, environmental things that they've been exposed to, et cetera, there -- there's no reason why exposure to talc would be the one item in epidemiologic questionnaires that would provoke recall bias where nothing else does.

So if it's a part of a general phenomenon, this recall bias, which is certainly a hypothetical possibility, we would see that most of the associations that were tested in case-control studies would be found to be high risks, maybe significantly high risks.

That's not what we observed. That's not what I've observed in my research. I have estimated -- and in the book that I showed this morning, there are literally thousands of odds ratio estimates in there. But in all of my research on over nearly four decades, I've published a lot of evidence, and I can show some examples, where there's no difference between cases and controls because there is no effect, there's no causal association between the two things, and the case -- although people were -- cases were asked about, let's say, alcohol consumption, and controls were asked about alcohol consumptions, the cases didn't overreport. They

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didn't say, Oh, well, they want to know if this caused my cancer, and therefore I'm going to tell them, yes, I consumed a lot of beer and wine and so on, or smoking or whatever.

So we don't see this as a general phenomenon that people overreport -- that cases overreport compared to controls.

Q Have you looked at the phenomenon of recall bias specifically when the agent being investigated is part of public wide -- wide scale litigation?

MS. PARFITT: Object to form.

THE WITNESS: So I haven't personally -- let me just think if any of my research has involved situations analogous to that.

Yes. Cell phones and brain cancer. So I was involved in a large cell phone and brain cancer study, and we asked cases about their use of cell phones, and we asked controls about their use of cell phones. And while the interpretation of the results of the study were somewhat controversial, there was no generalized phenomenon of cases reporting more cell phone use than controls in that particular study.

So that -- I can't think of another

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example in my career of sort of one of these generally suspected things. I mean, I've studied a lot of occupational exposures, but those tend to be more obscure, and people don't, you know, have the same visceral reaction maybe to were you exposed to formaldehyde or benzene or this or that.

BY MS. BRANSCOME:

Q For purposes of your meta-analysis, you looked at the binary question of ever having used talc and never having used talc, correct?

A Among other -- not only that, but that in addition to, yeah.

Q Yes. For example, you were not -- your data isn't stratified based off of having used it to a certain degree of frequency, correct?

A The -- the meta-analysis, no.

Q Okay.

A I -- I looked at dose-response information within the studies that provided it, but I didn't do any meta-analyses of the -- of the dose-response data.

Q Okay. So I -- I asked you sort of the broad question about what has changed in the scientific literature with respect to perineal use

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of talc since the 2006 IARC Working Group, but I want to point you now sort of specific to what you say in your report and ask you some more detailed questions about what's changed.

So if you could turn to page 67 of Exhibit 10 there.

A Yes.

Q Sorry, just one moment. My pencil has died on me. Just give me one second. All right.

All right. So you have a Section 9 here that says: "Contrast with IARC monograph and other reviews." Do you see that?

A I do.

Q All right. And you asked the question in your report: "What has changed in the years since the IARC review?" Correct?

A Correct.

Q All right. And you talk about additional studies and scientific literature addressing a variety of topics, including epidemiology, toxicology, molecular biology and mechanistic studies; is that correct?

A Sorry, are -- you're saying that I referred to those domains?

Q Yes.

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A Yeah.

Q Are those areas in which you contend there is developments in the scientific literature that is relevant to the question of the connection between perineal use of talc and ovarian cancer?

A Yes.

Q Okay. So I just wanted to talk to you about which of those categories you are independently offering an expert opinion as opposed to you are deferring to others. Does that make sense?

A Yes.

Q All right. So you are offering an expert opinion about developments in the epidemiology, correct?

A Correct.

Q Are you testifying as an expert in developments in the scientific literature with respect to toxicology?

A No.

Q Are you testifying as an expert with respect to developments in the scientific literature in molecular biology?

A No. I -- I'm aware that there have been some publications since 2006 in that domain, but

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I'm not offering an opinion about those.

Q Are you offering an opinion with respect to the biological mechanism by which the perineal use of talc may or may not cause ovarian cancer?

A Not an opinion. Again, I'm -- I'm acknowledging that there is new evidence, and I mention some of that, yes.

Q But as an expert, you're not here to opine on the strengths and weaknesses of that evidence or how it might be weighted against other evidence that's in the field related to biological mechanism; is that fair?

MS. PARFITT: Objection. Form.

THE WITNESS: That's correct.

BY MS. BRANSCOME:

Q Okay. Now, you state in your report that: "The various possible biases" -- this is still on page 67 -- "that are on the table remain substantially similar to the ones that were considered by the IARC panel." Correct?

A Correct, I said that.

Q Okay. What are the various possible biases that you refer to there?

A Well, I -- I'd have to go back to the IARC 2006 report to give you a full answer, but I

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guess the main things that were highlighted at the time were measurement error, how to assess exposure to talc, and what the impact of measurement error might be on the estimates, recall bias and the possible impact that that might have.

Q What do you mean by "measurement error"?

A Measurement error is closely related to recall bias, but it's not the same thing. Measurement -- recall bias refers to differences between cases and controls in the way they respond. Measurement error refers to inaccurate recall and reporting, irrespective of whether there are cases and controls. There can be exactly the same degree of error in -- in recall between cases and controls.

So it's not differential. It's not -- it's not a recall bias between the two groups. But if there's error, if some people report high use, and in fact they had medium use and all -- all this sort of thing, that impacts the estimates of relative risk -- even though those errors are the same in the cases and controls, that impacts the estimates of relative risk, and that generally impacts it in the direction of attenuating the

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relative risk estimates, lowering them from what they really are.

So that's one error -- one type of error that is -- that permeates epidemiology and that is present, and that we have to be conscious of and try to evaluate.

Q Could there be measurement error related to misdiagnoses?

A Yes.

Q And if there was misdiagnoses in the sense that someone was diagnosed with ovarian cancer but in fact had a different form of cancer, that could actually result in an artificially inflated relative risk, correct?

MS. PARFITT: Objection. Form.

THE WITNESS: So that kind of error in diagnosis has subtly different meaning in the context of a case-control study and a cohort study. And if -- if you want, I'll -- I could try to answer your question in -- in each context.

BY MS. BRANSCOME:

Q Okay.

A So it has an effect in both contexts, but it's a slightly different effect.

So in the context of a cohort study, if

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there is error in diagnose -- I guess you -- what you're alluding to -- let me make sure, you're alluding to possible misdiagnosis between mesothelioma and ovarian cancer. Is that where you're going?

Q That -- that is one possibility, yes.

A So in the case of a -- in this situation of a cohort study, following up a group of women, some of them really get mesotheliomas that are not linked to talc exposure, but those women are classified as ovarian cancers erroneously. They -- that error would have the effect of reducing the apparent risk compared to the real risk of talc and ovarian cancer. In that context, it would have that effect.

In the context of a case-control study, where you start with a group of women who have been diagnosed with ovarian cancer but in truth some of them had peritoneal mesotheliomas, and you compare them to controls, the women who -- and assuming that talc has no effect on peritoneal mesothelioma, which is another assumption to make, but -- but assuming that it does on ovarian cancer, just for the sake of argument, lumping in the mesotheliomas with the ovarian cancer cases

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would again create a reduction in the estimate of relative risk.

So in both situations -- I would have to work it out on a pad of paper, but I think in both cases -- and I did write something about this in my report, so if you don't --

Q Feel free to take a look. Sure.

A -- mind. Thinking out loud in the middle of a deposition is sometimes harder than thinking out loud at home. (Peruses document.)

So I'm looking at page 57, Section 7.2.5, at the bottom of the page and then going on to the next page, and see if what I said then is -- corresponds roughly to what I just said.

I think basically it -- it agrees with what I just said. Basically the effect would be to attenuate estimates in this situation.

Q So we discussed -- of the various possible biases that might affect the epidemiology, we talked about measurement error, recall bias, diagnostic error.

Are there any other potential biases that should be considered when evaluating the epidemiology on the use of talc peritoneally?

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A Yes. So I -- I did list a bunch of possible biases in my report. And one of them -- if you don't mind, I'll just go through the titles of the different things that -- starting on page 53.

Bias due to nonresponse or nonparticipation. If you carry out a case-control study, and you get -- you identify a group of a hundred women who are cases, and you ask them to participate and only 50 agree to participate, and the ones who agree to participate happen to be the only ones who used talcum powder, and the other 50 that you don't know about never used it, that would be a problem. And -- but it also depends what happens among the controls. Among the controls, do you get the same nonresponse bias? So there's a -- that is one possible bias in case-control studies.

The second one I listed was recall or reporting bias that we've discussed.

The third one is what I call nondifferential or random error, which we discussed. It's error in reporting that is equal in cases and controls, but it has an impact on relative risk estimates.

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The fourth one, which we haven't discussed, has to do -- it's mainly a problem for cohort studies. And if you carry out a cohort study of -- focused on cancer, and you collect information about exposure, and then follow them for two years to find out how many of them got cancer, and whether there is a difference between the people who were exposed and the people who are not exposed, well, that would be pretty hopeless because it takes more than two years for cancers to develop and be diagnosed. So short follow-up periods in cohort studies would be a source of bias in cohort studies.

Diagnostic errors, we've just discussed.

Initiation of powdering as a result of ovarian cancer, is it possible that some women who -- that there is a statistical association between powdering and ovarian cancer, but it's because the women who get ovarian cancer in the early stages, to relieve symptoms or to deal with discomfort start to use powdering. And so that is a potential bias.

Confounding is the next category, and that's -- it's a huge category of potential distortion that is a little bit different from the

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other biases. And this is why I corrected you at the beginning when we were talking about confounding and bias. I mean it's not -- I'm not criticizing you in any way for this. It's -- there is terminological gray zones in epidemiology, so it's not always clear. But --

Q Would it be fair to describe a confounding variable in the context of ovarian cancer as something that as of now is unknown that makes a particular individual more likely to develop ovarian cancer that also, for whatever reason, makes them more likely to use talcum powder?

A Yes. That would be a correct interpretation of "confounding."

Q And that is something that should be taken into account in evaluating the epidemi- -- epidemiological literature, correct?

A That's correct.

Q And you would agree that the scientific community at large has not yet understood all of the potential factors that might contribute to a susceptibility to develop ovarian cancer, correct?

MS. PARFITT: Objection. Form.

THE WITNESS: Sorry, I -- I was hearing

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two things with my two ears.

MS. PARFITT: Sorry.

THE WITNESS: Can you repeat the last part?

BY MS. BRANSCOME:

Q Yeah. You would agree that all of the factors that might make someone susceptible to developing ovarian cancer are not currently known.

A That's correct.

So are -- are you -- are you getting at the potential impact of confounding as -- from unknown factors as something that hasn't been properly evaluated or that is part of this picture?

Q I am simply asking you --

A Yes.

Q -- questions about your opinions.

A Yes, yeah.

Q But you agree that the possibility of an unknown confounding variable is something that, as an epidemiologist, you would at least consider when looking at the strength of association established by epidemiological studies, correct?

A I would consider it, and I've considered it in the context of this literature, and in my

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opinion, it's unlikely that any confounding factor or factors would create the pattern of results that we see.

And if I could give you one piece of evidence about why I -- you know, that illustrates why I think that. A confounding factor can only bias the result by a certain amount; not as strong as its own relationship to the risk factor.

So if there's a risk fact- -- if the relative risk that we see around 1.3 -- ballpark, let's for the sake of argument say 1.3 -- is due to a confounding factor, that confounding factor would have to have an association with ovarian cancer much strong -- stronger than 1.3, but much stronger than 1.3.

And I can -- just to illustrate that, I actually have a publication -- I think I gave you a copy of that publication of mine that illustrates my own research on occupational causes of cancer --

THE VIDEOGRAPHER: Sorry.

THE WITNESS: Am I again disconnected? Okay. When I get excited...

Yes, that's the one. If I could --

MS. PARFITT: Make a copy.

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THE WITNESS: Do you have any copies?

MS. PARFITT: I'm looking to see.

THE WITNESS: So -- well, if I could just read a couple of sentences from the abstract of this, I'll tell you what this is about. It's a study of --

BY MS. BRANSCOME:

Q Could you, please, Dr. Siemiatycki, identify for me --

A Oh.

Q -- what is the paper from which you are reading.

A Yes. This is a paper called "Degree of confounding bias related to smoking, ethnic group, and socioeconomic status in estimates of the associations between occupation and cancer."

Q Is this something that you cite to or reference anywhere in the report that you submitted in the MDL?

A It's only in my CV, which is I think part of the record.

Q What led you to specially identifying this article, which you seem to have handy today here at the deposition?

A Because I was thinking about how to

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illustrate the potential impact of confounding in this issue of ovarian cancer and talc, and what -- to explain why I believe that the excess risks that we observe are unlikely to be explained by confounding.

Q Okay. You would agree, though, that if there was a confounding variable that had a relationship with, in this case, ovarian cancer that was stronger than 1.3, it could explain an increase of 1.3 associated with the use of talc if it was similarly connected to the use of talcum powder products --

MS. PARFITT: Objection. Form.

BY MS. BRANSCOME:

Q -- correct?

MS. PARFITT: Objection. Form.

THE WITNESS: Well, one of the points that I want to illustrate is that not only would it have to be stronger than 1.3, it would have to be a lot stronger than 1.3.

BY MS. BRANSCOME:

Q How strong would it need to be?

MS. PARFITT: Objection. Form.

THE WITNESS: I'll answer that by -- by showing you what -- what we found when we were

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examining the associations between different occupations and lung cancer.

So occupation and lung cancer, there are some true associations there, as you probably know, but -- and we collected information about people's occupations. We also collected information about their smoking history, their socioeconomic status, their ethnicity and so on. A lot of factors.

But the most important part of this was looking at the association between lung cancer and smoking and -- lung cancer and occupation. We chose I think 15 occupations, estimated the odds ratios for 15 different associations between occupations and lung cancer, and we controlled for smoking or we didn't control for smoking. We compared the results when you control for smoking and when you don't compare -- control for smoking.

BY MS. BRANSCOME:

Q Respectfully, Dr. Siemiatycki, I only have seven hours to ask you questions.

A Okay.

Q Your -- your -- counsel for the plaintiffs can ask you to fully explain other research that you've done.

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A Okay.
Q It sounds very interesting.
A Thank you.
Q But my question to you is, in your opinion, how strong would an association have to be with a confounding variable in order to play a significant role in a 1.3 relative risk?
A My --
MS. PARFITT: Objection. Form.
THE WITNESS: -- guess, it would have to be in the order of 3 to 5. Because it also depends on the association between a talc powdering behavior and this unknown confounder.
BY MS. BRANSCOME:
Q Okay. Are there limitations to performing a meta-analysis?
MR. TISI: Do you want to mark that or no?
MS. BRANSCOME: No.
THE WITNESS: Are there --
BY MS. BRANSCOME:
Q -- limitations to performing a meta-analysis?
A I -- I'm not sure what -- like --
Q I believe you referenced earlier that

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you teach a class on epidemiological methodologies; is that correct?
A Yes.
Q Okay. So presumably, when you teach a class you discuss the strengths and the limitations of different types of analyses. Fair?
A It comes into the course, yes.
Q Okay. So in the context of looking at the strengths and the weaknesses of different types of analyses, are there any weaknesses or limitations to a meta-analysis?
A Weakness, okay. Because the word "limitation" doesn't always mean weaknesses.
Meta-analysis depends on having reliable data. So the basic studies that you use and the basic data that you use in a meta-analysis has to be sufficiently reliable to support a good meta-analysis.
The data have to be sufficiently comparable in nature. So putting apples and oranges and grapes into the same meta-analysis would be a problem. Different kinds of apples, yes, but different -- et cetera. So you have to be careful that you're really measuring the same thing, have the same outcomes.

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In -- one of the differences between -- as I mentioned earlier, between -- some types of meta-analyses are carried out on clinical trials, in fact, I would say the bulk of meta-analysis is conducted in clinical trials research where the research protocols are really very standardized from one study to another, and that enhances the ability to make inferences from the results of a meta-analysis.
In observational epidemiology, this isn't true. We have very different kinds of study design and problems that arise in different studies, and this leads in itself to variability and heterogeneity. And it is sometimes imagined that heterogeneity is a reflection -- some sort of a reflection of different risks in different populations or something like that. It's mainly -- it's at least in part a reflection of the fact that different study designs and different -- just not just the overall architecture of the design, but the implementation, how people were interviewed, what the questions were and so on, influences the results of a study. That varies from study to study, and that creates heterogeneity. So --

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Q Does heterogeneity -- do you want heterogeneity in a meta-analysis? Is it a good thing or does it weaken the meta-analysis?
A It depends on the purpose of the meta-analysis. So some meta-analyses have as one of their objectives to identify populations in which the effect of the drug or the -- whatever you're studying is different from one population to another. That is a situation where you want to identify heterogeneity, and you want to try to target heterogeneity and the different populations, different studies, the different methods of administering medication, or whatever the differences are between studies.
In observational epidemiology, it's rarely the case that heterogeneity -- that a formal evaluation of heterogeneity is -- is useful or actionable. Usually the bottom line result doesn't change. For example, there are meta-analyses of smoking and lung cancer where the meta-analysis demonstrates heterogeneity of the results. The results are always between a relative risk of 5 or 6 and a relative risk of 10 or 12.
Now, for the question of -- for the

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qualitative question does smoking cause lung cancer, it really doesn't matter if the relative risk is 5 or 12. So that heterogeneity has absolutely no bearing on the question that is being asked, and the best answer ignore -- would ignore heterogeneity. It doesn't really matter.

If you're trying to find out in which populations does smoking have a greater impact, then you might want to say, Okay, let's -- which are the populations where the relative risks were 5 and which are populations where the relative risks are 12? Can we identify differences between it? Are they different countries, different ethnic groups, and so on and so forth.

So it's a longwinded answer, and I'm not sure if that gets to the question that you were asking.

Q Well, you said in your report -- and it's on page 17, if you want to look at it -- you stated -- it's at the top of the page.

A Yes.

Q "Unless a significant methodological flaw can be identified that has caused the heterogeneity, the best overall estimate remains the meta-estimate."

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Did I read that correctly?

A Yeah. I guess we should read the beginning of the sentence just to -- oh, yes. Oh, yes, I see. Sorry. Yes, I agree with you.

Q So what is the basis for that statement?

A The basis is that it's correct. Are you offering an alternative to this that I should consider?

Q Is there -- I guess my question is, is it -- is it correct because you think it is correct? Or can you point me to something that would support that principle and explain it more fully?

A I -- I haven't looked for any documentary evidence that this has been written up in this way anywhere. I've been interpreting meta-analyses in this way, and I believe this to be true.

Q Okay. So we talked about a few different things that you articulated as potential weaknesses to a meta-analysis. Are there any other weaknesses to a meta-analysis?

A Possibly. Are there any that you can identify? I will be happy to -- you know, I'm just -- to meta-analysis as a concept, I think one

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of the weaknesses is that it is sometimes fetishized, and that people put too much -- you know, have sort of a magical belief in the value of meta-analysis result, which is not justified. Often the results of certain critical studies are as valuable or more valuable than those of a meta-analysis, especially when -- especially in observational epidemiology when it's hard to really identify all of the parameters that influence the quality of a study.

And so determining what studies to include and which data from each study to include is tricky. It requires judgment. Those judgments can be wrong. They can be contested. Sometimes one very good study is as powerful, but -- it's part of -- a meta-analysis is part of a package of information that I would look at in evaluating the risks.

Q Okay. You mentioned the concept that a scientific judgment needs to be used in determining what studies and, more specifically, what data within those studies to include in a meta-analysis, correct?

A That's correct.

Q And you would agree that -- and I

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believe you just referenced it -- that there can be errors in judgment in determining what studies to include or not include or what data to include or not include, correct?

A I --

MS. PARFITT: Objection. Form.

THE WITNESS: I would not characterize these things as errors in judgment. There can be differences in judgment that are legitimate that -- where people, equally well motivated and well trained and experienced, can arrive at different judgments on some of these things.

BY MS. BRANSCOME:

Q Did you have a specific methodology that you used in determining which relative risk or odds ratio to include from each of the studies that you include in your meta-analysis?

A Carefully reading the study, carefully reading the tables and the reports of what is in the paper, understanding what is there, and then making a determination on that basis.

Q And those were, to use your words, quote, judgment calls; is that fair?

A Yes.

Q Okay.

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A There is no alternative to judgment in science.
Q The meta-analysis in your MDL report is different than the meta-analysis in your 2016 report; is that correct?
A The bottom line result, you're saying? Well, yes, but also in the 2016 report, I presented I think eight different estimates, depending on scenarios of which studies to include and which result from which studies to include, because there were some borderline judgments where I thought the best thing would be just -- just provide all of the different options.
In 2018, I adopted a different strategy. I thought, well, the best service I can provide the court is to give my best estimate of which studies and which data to include, and then to provide a set of alternatives that I call sensitivity analyses. So that's one difference between the two reports.
Q Okay.
A But there were some differences in which studies were included and which result in which studies were included from the one to the other.
Q Well, let me start at the very basic

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level. Are there any studies that are included in your 2018 meta-analysis that were not available at the time that you did your 2016 meta-analysis?
A I don't think so.
Q Okay. So you mention that you made some changes to which studies you included and even within that, some of your numbers are slightly different.
Can you explain to me what changes you made with respect to which studies to include?
A So somewhere I did the side-by-side comparison, and I don't think I have -- I don't think I have that with me. So it would take me a bit of time to just compare the two and see how -- how they compare.
Q So you generated actually a side-by-side comparison of your 2016 meta-analysis and your 2018 meta-analysis?
A Well, of -- of the studies that went into them. Well, generated is a kind of a highfalutin word. I listed on a piece of paper, and then I -- beside it I listed the other ones. So I'm pretty sure I did that at some point just to make sure. If I didn't do it on paper, I did it in my mind. I wanted to know, you know, what

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is the difference doing it this way or doing it that way.
Q Okay.
A But it's largely overlapped. I mean, I'll look at it and see if I can quickly recognize which studies might have been --
Q Well, I can point you --
A Okay. If you've done it, that's great.
Q Yeah. So you included Green 1997 in your 2016 meta-analysis, correct?
A Yes.
Q And you did not include Green 1997 in your 2018 meta-analysis, correct?
A Correct.
Q Why did you -- did including Green 1997 in your earlier report, do you consider that to be a flaw?
MS. PARFITT: Objection to form.
THE WITNESS: I don't consider any of these things flaws. They were judgment calls, and I -- actually, in that case, I learned in between some information that I didn't know in 2016 that made that decision the right one.
BY MS. BRANSCOME:
Q What information did you learn?

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A Well, a case-control study was carried out in Australia by a team that involved Green and Purdie, and the publication in 1995, I think it was, described their analysis -- sorry, do you want me to stop while you're --
Q Keep going.
A The paper in Purdie 1995, I think it is, described the association between talc and ovarian cancer. I had that in my database.
And I also had -- a couple of years later, there was a paper by Green that was not focused on talc. It was focused on risks that were related to -- to other -- well, to other gynecological issues in relation to ovarian cancer. But in there she -- in the text, not in any table but in the text, she provided a result on talc and ovarian cancer.
Because that paper was published in 2000 -- in 1997, the Green, et al., paper, I assumed that that was an extension of the 2000 -- of the data that was used for the 1995 paper, and that it actually included more information and more up-to-date information than the 1995 paper published two years earlier. I had some doubts about that. But that was the decision I made in

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2016. In general, when there were different reports from the same study at different intervals, I took the most recent one as being the more definitive one.

When I started analyzing for the 2018 report, I had lingering -- I remained with the lingering doubts about the Green study -- the Green report and whether it actually was an updated version of the talc results from 2016 -- from my 2016 report.

And I wrote to Adele Green, who I know as an acquaintance, not well but enough to write and say, You know, what's going on with these -- what was going on with these two papers? Is it the fact that the result -- which one has the most definitive result on talc and ovarian cancer, the earlier one or the more recent one? And she wrote back and said, The earlier one does. That the later one -- and I can't remember the exact explanation, but it had to do with some cases being dropped because of reasons having nothing to do with talc but having to do with other hypotheses that she was examining.

So in any case, the two results are identical. So it makes no difference. But that

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is, in answer to your question, why did it change, it wasn't capricious issues. It wasn't wrong. It was the right thing to do.

Q Did you retain copies of the e-mail correspondence that you had with Green?

A I imagine that I did, but I -- this would have been eight months ago maybe or something.

Q Would it be fair to say that you relied on Green's representation of which dataset was more fulsome in determining what to use in your 2018 metadata?

A Yes.

Q And that was something she communicated to you by e-mail, correct?

A That's right.

MS. BRANSCOME: We can meet and confer about this offline, but we would request production of those e-mails.

MS. PARFITT: We'll take it under advisement. Thank you.

MS. BRANSCOME: Okay.

BY MS. BRANSCOME:

Q Do you agree that in terms of the trend for relative risk, with the addition of newer

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studies over time, the relative risk for the association between peritoneal use of -- I mean perineal use of talc and the development of ovarian cancer has actually gone down?

MS. PARFITT: Objection. Form.

THE WITNESS: I -- I haven't evaluated that, and I have no reason to agree or disagree with it. If you want me to spend a bit of time looking to see if I can --

BY MS. BRANSCOME:

Q Well, for example --

A -- confirm or --

Q You are familiar with the Berge 2018 paper, correct?

A Yeah, yeah.

Q And the authors in that paper said: "We confirm the trend toward lower overall risk estimates as more evidence accumulated."

MS. PARFITT: Can we get that article in front of him?

MS. BRANSCOME: Of course.

MS. PARFITT: Thank you.

MS. BRANSCOME: It is tab 48.

(A discussion was held off the record.)

MS. PARFITT: It's tab 18?

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THE WITNESS: Tab 48?

BY MS. BRANSCOME:

Q Tab 48.

A I don't have a tab 48.

Q It may be in your second binder.

A Oh.

MS. PARFITT: I will take this one out. And I'll take this one for you.

THE WITNESS: Thank you.

MS. PARFITT: Of course.

THE WITNESS: Thank you.

BY MS. BRANSCOME:

Q Dr. Siemiatycki, are you familiar with the article that is located there behind tab 48?

A Yes, I am.

Q Berge is the lead author on this publication titled "Genital use of talc and risk of ovarian cancer: A meta-analysis." Correct?

A Yes, correct.

Q I believe earlier you said that Berge "beat you to the punch" might have been the phrase that you used.

What did you mean by that?

A If this had never appeared, I might have worked on a manuscript to submit for publication

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on my meta-analysis before today, sometime in the past.
Q Do you rely on Berge 2018?
MS. BRANSCOME: Let's go ahead and mark that actually as Exhibit 12.
(Exhibit No. 12 was marked for identification.)
MR. TISI: How long have we been going? How long have we been going?
MS. BRANSCOME: Just under five hours.
MR. TISI: No, how long have we been going on this one?
MS. BRANSCOME: We can take a break if -- do you need a break?
MR. TISI: I'm just asking.
MS. PARFITT: Do you want a break?
THE WITNESS: No, let's finish -- let's finish with this.
MS. PARFITT: Okay.
(A discussion was held off the record.)
BY MS. BRANSCOME:
Q Do you rely in forming your opinions on this case on the Berge article that we just marked as Exhibit 12?
A I formed my opinions before knowing

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about this article.
Q Do you believe that the Berge 2018 study supports the conclusions that you have reached in your own meta-analysis?
A Yes, I think it does.
Q In what way?
A Well, let me preface that also by saying that there's been a bit of a -- a history to this article of -- I thought the publication -- there was a version published in 2017, which I thought was the definitive version that I've always kept in my binders as the Berge article, and it's only very recently that I actually came upon this particular version, which is not greatly changed from the 2017 but slightly changed, and I haven't fully digested the small changes that have been made.
Q If you could -- sorry for the multiple binders, but if you want to look at your first binder, tab 13, we can see if that's the paper that you previously had reviewed as the Berge paper.
A I -- I don't mind answering questions in relation to this version. Just -- I just wanted to point out that there are a couple of things

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here that I'm -- I haven't fully integrated into my evaluation of this paper. But I know what's in it. I know what's the other one. I know what's in this one.
Q Okay. So back to my question, Dr. Siemiatycki.
A Yeah.
Q You stated that you believe that the Berge 2018 study supports the conclusions that you have reached in this litigation, and my question to you was, what do you mean by that?
A Well, it supports it in a few ways. One -- and from my point of view, the most important one, but probably not for anyone else -- is that they carried out a search of the literature using a much more intensive and -- a much more intensive procedure than I had. I had full confidence in the procedure that I had used, but it was not as long, as lengthy, as costly, et cetera, et cetera, as what -- and the bottom line was that they didn't find any papers -- relevant papers that I hadn't found. So I was very reassured by this.
The second thing is that the bottom line meta-analysis result -- well, no, the second thing

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is that the actual results that they chose from the different studies were very similar in most cases to the ones I had chosen from the different study. So there was a degree of corroboration there that I was happy about.
They adopted a different strategy in one important respect, and that concerned how to deal with the Terry paper and the various components of the Terry paper. And with all due respect to this team, I don't think that there -- theirs was in error. I prefer my approach that maintained the integrity of the pooled analysis, which has some advantages. But there's -- you know, I wouldn't expect any large differences on the bottom line estimates from their strategy or my strategy. And the bottom line results were very similar.
They -- also in the previous version, their evaluation of dose-response was, in my view, deficient in not devoting adequate weight to what I think is the most important evidence around dose-response in this area, which is the Terry pooled analysis. They focused on studies which provided results by duration of exposure and by frequency of exposure. And I think it's the combination of those two which is the most

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important metric.
And the fact that the Terry analysis was able to combine an enormous dataset for evaluating dose-response, much greater than any of the studies looking at duration or any of the studies looking at frequency, meant that in my view they missed an opportunity to properly evaluate dose-response by cumulative exposure.
I note very recently that they have -- they've now used a different statistical procedure for evaluating dose-response by duration and frequency, which is embodied in their Table 3, which I don't fully understand. It seemed -- this was the new part of this study, which I haven't -- I looked quickly in the method section to see a description of exactly what they did, and I couldn't find it, but I don't deny that it's somewhere in the article. I just haven't had time to properly evaluate that part of it.
Q As you sit here today, do you have any criticisms of the statistical analysis that they performed?
A All of it? You're referring to all of it? Well, I --
MS. PARFITT: Objection. Form.

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THE WITNESS: I note that their bottom line meta-relative risk is lower than the one that I estimated. And I'm not sure why that is. To me the -- the difference in -- the minor differences in the studies included or excluded is not sufficient to explain that, and I wonder if it's a software issue, of them having used a different software for meta-analysis than I used. But it's not a criticism necessarily. I just note this discrepancy.
BY MS. BRANSCOME:
Q Are there any studies that you included in your meta-analysis in 2018 that the Berge authors failed to consider that you think they should have included?
A So I'll go back to my report, because I do have a table outlining that in my report.
MS. PARFITT: You want your report?
THE WITNESS: Yeah, my report, back to my report.
MS. PARFITT: Let me get you that.
BY MS. BRANSCOME:
Q And we'll take a break after we finish this paper.
A Thank you.

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That's 2016. Okay.
Q Dr. Siemiatycki, if you could just identify for the record where you're looking so I can follow along and the record reflects it.
A Right. I'm looking in my report of 2018 in the appendix, page 103, Appendix B.
Q So looking at Appendix B, which also helpfully compares Penninkilampi as well, are there studies specifically focused on the Berge 2018 that in your opinion the authors should have included in their meta-analysis?
MS. PARFITT: Objection. Form.
THE WITNESS: Okay. Well, just following this table, I see that Gates 2008 was in my report, but not in theirs. Now, it wasn't in my main analysis; it was in one of my sensitivity analyses. So I have no -- my main analysis and their main analysis concurred about Gates.
The next one that I see that was in my analysis but not in theirs was what I call Schildkraut B. And Schildkraut B, for the record, is -- there's no such study, but I've named it Schildkraut B. It's the result of the analysis of the Schildkraut study of cases that were interviewed before 2014, I think it was.

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BY MS. BRANSCOME:
Q And we will discuss that in more detail, but do you consider it an error for the Berge authors to just have taken the Schildkraut 2016 data as a whole?
A No, I don't consider it an error. In fact, I used it -- not in my main analysis but in one of my sensitivity analyses.
The same with Shushan. So Shushan '96 was in my -- one of my sensitivity analyses, not in my main analysis, and they did not include it in their main analysis. So we agreed on the main analyses there.
Terry, I included in mine, and they didn't include Terry. They included the component parts of Terry.
So there was no -- there was no study that was in my main analysis that was not in theirs.
Q Okay. And looking quickly back at the Berge article, coming full circle to the question that I started with, if you could look on page 253 of that paper.
MS. PARFITT: Yes, 253.
BY MS. BRANSCOME:

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Q Under the Discussion section, do you see where I am?
A Yes, I do.
Q All right. The second paragraph under Discussion from the Berge paper states: "This meta-analysis suggests that genital powder use is associated with a small increased risk of developing ovarian cancer. However, this positive association appears to be limited to the serous histological type and to case-control studies."
Did I read that correctly?
A You read it correctly.
Q It continues on: "This estimate is somewhat lower than that of previous meta-analysis," and in parentheses, it refers specifically to Huncharek and Langseth, colon, "In our cumulative meta-analysis, we confirmed the trend toward lower overall risk estimates as more evidence accumulated."
First, did I read that correctly?
A You read it correctly.
Q Do you have any basis to disagree with the statement by the Berge authors in this paragraph in the Discussion section?
MS. PARFITT: Objection. Form.

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THE WITNESS: So there are a few statements in this paragraph, not just one.
Do you want me to take them one by one?
BY MS. BRANSCOME:
Q Sure.
A So whether "the positive association appears to be limited to the serous histological type," I have some problem with that. I -- I was looking in their publication for which studies -- let me just see if I can -- which studies provided evidence on serous type, and I couldn't find that.
In my -- in my analysis, the evidence that I was able to -- to compile that's in this addendum and meta-analyze showed an approximately similar meta-relative risk between serous and all ovarian cancers.
So there is no -- I found no evidence that this -- that there was a particular peak of risk for serous types compared to other types.
Q As you sit here today --
MS. PARFITT: Are you done -- are you done with your -- is that --
THE WITNESS: Yeah, for -- for that point on serous, yes.
MS. PARFITT: Thank you.

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BY MS. BRANSCOME:
Q Based on the evidence that's available today, do you think there is strong enough epidemiological evidence to reach a conclusion about the association between talc -- genital talc use and other specific subtypes of ovarian cancer?
A I think it becomes very fragile to draw inferences about other types. And in the absence of reliable evidence about other types, you know, especially those that have a smaller fraction of all ovarian cancers than serous type, I think the prudent thing to do is to consider that all ovarian cancers are affected the same way.
The same way as with -- we do with lung cancer and smoking and histologic types of lung cancer. While there is some variability in the degree of relative risk between smoking and adenocarcinoma or squamous cell carcinoma or other types, small cell, large cell, for lung cancer, there is some variability in the degree of relative risk. Generally speaking, we say smoking causes cancer. Smoking causes all kinds of -- causes lung cancer, all kinds of lung cancer.
Q Are you qualified to evaluate the reasonableness of making an extrapolation from one

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subtype of ovarian cancer to all types of ovarian cancer in terms of what is biologically plausible?
MS. PARFITT: Objection to form.
THE WITNESS: My inferences would be based on the statistical and epidemiological evidence, and if there is biological, physiological evidence that would indicate that talcum powder is more likely to influence one type of ovarian cancer than another, I would be absolutely open to that interpretation.
BY MS. BRANSCOME:
Q All right. So moving along in that paragraph, are there --
A Okay.
Q -- any other sentences or portions of sentences with which you disagree?
A So, the statement about case-control studies and whether the positive association is limited to case-control studies is -- is a bit contentious. And I understand very well that the evidence does not -- if we only had the cohort studies, if that's all the evidence that existed, it would be fair to say that that evidence does not argue for an association with -- between ovarian cancer and -- so I would -- I'm not -- I

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guess if I were writing this, I would qualify it somehow, and -- no, I think I'll just leave -- leave that there, and you may have follow-up questions about the case-control/cohort comparison.

Q Is there anything else in this paragraph in the Discussion section of Berge 2018 with which you disagree?

MS. PARFITT: And can you refer him to the left-hand side of the discussion or the entire --

MS. BRANSCOME: The second full paragraph in the Discussion section.

MS. PARFITT: Which starts with "An important."

THE WITNESS: So I -- I think what --

BY MS. BRANSCOME:

Q No, it begins with "This meta-analysis suggests."

A Yeah. Yeah.

So your question -- the question is about that sentence that says: "This estimate is somewhat lower. In our cumulative meta-analysis, we confirmed the trend towards lower," da, da, da, and that refers I guess specifically to Figure 4

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on the following page.

Certainly the confidence intervals, if you look at the confidence intervals of the meta-estimates in that Figure 4, from 1988 through 2016, everything is embedded in everything. So from the point of view of statistical variability, it would be difficult to argue that there is a real statistical -- statistically meaningful difference between the trendline from -- through that whole period.

There is a tendency by eye for a decline. I don't know in their paper, in the text whether they've characterized the decline with any regression coefficients or not. I don't remember. It seems to me like a rather weak trend to make a big point about. So I wouldn't disagree with the -- the point they're making, but I think it's not strongly supported. There isn't a strong trend downwards in this line, in this figure.

Q So you would agree with the authors that there is a downward trend in the risk assessment over time as more evidence accumulated, but you might disagree with them about the strength of that trend. Is that fair?

MS. PARFITT: Objection. Form,

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misstates his testimony.

THE WITNESS: It requires looking at which studies were included in each of these meta-analyses, and which results were chosen by the meta-analysis people who did these meta-analyses from each paper. The meta-analysis is somewhat sensitive to which studies are selected and -- so the same study might have been selected in the 2004 meta-analysis as in the 2016, but they chose -- they decided to choose an estimate from -- a result from that paper that they thought was the most reasonable one and that's different.

So one would have to do side-by-side comparisons of which studies were included and which results before concluding that this is because of a downward trend. You also need to know when the data were collected.

You know, I'm not sure if the -- if you are implying or if they are implying that -- you know, I -- a declining trend, if there is one, in meta-analyses -- these are the years of the meta-analysis, not the years that women were exposed. So there's no implication -- direct implication here that the risks to women are

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declining over time. So if it's only the fact that meta-analyses carried out at different points in time showed very slightly different results, I don't find that a noteworthy observation. But...

BY MS. BRANSCOME:

Q And you agree that meta-analyses are sensitive to the judgments applied by the authors of those studies, correct?

A Yes, they are, but to -- to a degree. I mean you have to weigh the -- the degree of bias -- or not the bias, but the -- the influence of particular decisions that you might make.

I've done an analysis looking at what happens when you include or exclude studies, and you could exclude any study from my meta-analysis and you'd find the same result. So if any of these studies in my meta-analysis are completely wrong, if they were completely invented, if the women were never actually interviewed but the investigator just wrote a paper on a Sunday afternoon, and you're suspicious that this study was -- or badly -- whatever, if you take any one of these studies and take it out of the mix, it wouldn't affect the meta-relative risk.

MS. BRANSCOME: Okay. I think this is a

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good place to take a break.
MS. PARFITT: Very good. Thank you.
THE VIDEOGRAPHER: We're going off the record at 5:07 p.m.
(Recess.)
THE VIDEOGRAPHER: This begins disc number 5 in the deposition of Jack Siemiatycki. We're going back on the record at 5:36 p.m.
BY MS. BRANSCOME:
Q One of the decisions that you had to make in conducting your meta-analysis was how to treat the Schildkraut 2006 study, correct?
A 2000 --
Q -- '16.
A Thank you. Yes.
Q Okay. For purposes of your meta-analysis, you divided Schildkraut 2016 into two sets of results, correct?
A "Divided" isn't quite the right word.
Q How would you describe it?
A Because they're not separate, one includes the other.
Q Okay.
A So just the word "divided" -- I'm not sure what the right word is, but there were two

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sets of results reported, and I used both sets of results. One is embedded -- one set is embedded in the other.
Q So correct me if I'm wrong, Schildkraut 2016-A shows results from all subjects who were interviewed in the study from 2010 through 2015. Schildkraut 2016-B is a subset of that that includes the results for subjects who were interviewed before 2014, correct?
MS. PARFITT: And, Counsel, if we could get Schildkraut in front of him, would that be all right?
MS. BRANSCOME: Sure.
BY MS. BRANSCOME:
Q If you need to reference it --
MS. PARFITT: Sure.
BY MS. BRANSCOME:
Q -- to answer my questions, certainly.
A If you're going -- yes, I think you're right in what you said, but if you want me to look at specific results in the paper, maybe I should have it in front of me.
Q I was going to direct you there when we got to those questions.
A Okay.

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Q But if it's your preference to look at the paper now, it is tab 15.
A It's in this binder, I think.
MS. PARFITT: Here it is. Thank you.
THE WITNESS: Thank you.
Okay. The -- so one includes all -- Schildkraut A includes all of the cases interviewed the whole period, and the Schildkraut B includes cases after 2014, but I'm not sure if it includes 2014. But...
BY MS. BRANSCOME:
Q Let me ask a clarification on that one, Dr. Siemiatycki.
Schildkraut 2016-B shows results for individuals interviewed before 2014, correct?
A I'm sorry, which one, B? Schildkraut B?
Q Schildkraut 2016-B.
A B.
Q I believe you just stated after, so I --
A I see. Okay.
Q -- wanted to seek clarification there.
A Okay. Yeah, I'm --
Q If it's helpful --
A It's late in the day. Let me --
Q Sure. If it's helpful to you to

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reference in your report, you discuss your separation of Schildkraut on page 74, Note 6.
A That's why I wanted my report in a small binder, rather than -- before 2014, yes.
Q And the reason that you divided -- separated the study into those two groups, one which is inclusive of the other, is to account for the possibility that publicity surrounding two class action lawsuits on talc and ovarian cancer in 2014 may have induced bias in the validity of reporting talc exposure; is that correct?
A That's correct.
Q Okay. But in your main meta-analysis you use Schildkraut A, which includes all subjects interviewed from 2010 to 2015, correct?
A That's correct.
Q When you substituted Schildkraut B, which included only subjects interviewed before 2014, for Schildkraut A, all subjects interviewed from 2010 to 2015, the relative risk estimate for the meta-analysis goes down, correct?
A Yes. From 1.28 to 1.27.
MS. BRANSCOME: If we could mark Schildkraut as Exhibit 13.
THE WITNESS: There's a label here

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already.
MS. PARFITT: There is. I will go ahead and just -- you don't care -- there's a defense label of 1436. Can I go ahead and put the exhibit over top of it? Does it matter to you? Okay. This will be 13.
(Exhibit No. 13 was marked for identification.)
BY MS. BRANSCOME:
Q All right. If you could, Dr. Siemiatycki, please turn to Table 2, which is on page 1414 of Exhibit 13.
A I see it.
Q Before doing that, can you just simply confirm that Exhibit 13 is in fact the Schildkraut study?
A Yes, it is.
Q And we see in Table 2 that there is a category for interview date less than 2014, and then another category for interview date greater than 2014. Correct?
A Yes, I see that.
Q All right. And we see that there are odds ratios for any genital use for both of these categories, correct?

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A Yes, I see that.
Q And the odds ratio for any genital use for individuals who were interviewed after 2014 is higher than the odds ratio for any genital use for those individuals who were interviewed before 2014, correct?
A That's correct.
Q And it also shows the number of individuals that fell in those respective categories, correct?
A Yes, correct.
Q And so just simply looking at the reported data, the percentage of women with -- with ovarian cancer who reported any genital use of talc who were interviewed before 2014 was 36.5 percent, correct?
A Can you run that by me again? Show me where the --
Q Sure.
A So interview date before 2014, any genital use, the percentage 36.5, number 128, is that what --
Q Yes.
A -- you are looking at? Okay.
Q Was that correct?

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A Yes, that's correct.
Q All right. And the -- those are for the cases, meaning individuals who had been diagnosed or reported as diagnosed with ovarian cancer, correct?
A Correct.
Q And if you compare that against the controls, 34 percent is the reported number for women without ovarian cancer who reported any genital use of talcum powder that were interviewed before 2014, correct?
A That's correct.
Q And if we look at those same percentages for the individuals who were interviewed after 2014, the percentage of cases, meaning individuals who have been diagnosed or reported as diagnosed with ovarian cancer who claim to have used talc genitally at any point in time, goes up to 51.5 percent compared to a control of 34.4 percent, correct?
A That's correct.
Q All right. And so if we compare individuals interviewed before 2014 who have been diagnosed or reported as diagnosed with ovarian cancer to those individuals in the same category

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who were interviewed after 2014, you see at least a 12 percent increase in those figures; is that correct?
A 12 percent representing which -- which two numbers?
Q Representing the difference between the cases who reported genital use of talcum powder --
A The 36.5?
Q -- as compared to the 51.5 percent.
A So you -- you said it's 12 percent? I think it's like 14 percent.
Q It is.
A Okay.
Q That is correct.
But if you do the same comparison for the control group, you don't see a similar increase or a similar difference in the reporting percentages for individuals interviewed before 2014 as after 2014, correct?
A That's correct.
Q Okay. Are those results compatible with the existence of recall bias for individuals interviewed after 2014?
A I would say they are compatible with recall bias.

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Q Okay. Was litigation-related recall bias considered by IARC as a possible bias that could explain the association between perineal talc use and ovarian cancer?
A In 2006?
Q Correct.
A I -- I can't remember verbatim the discussions, and I can't remember a discussion of litigation-related impact on response bias. I doubt if there would have been any at that time, but -- and I don't recall any discussion of it.
Q And at least the Schildkraut authors are identifying 2014 as a significant year with respect to widespread knowledge of lawsuits involving talcum powder and a claim of ovarian cancer --
MS. PARFITT: Objection. Form.
BY MS. BRANSCOME:
Q -- correct?
MS. PARFITT: Objection. Form.
THE WITNESS: I -- if you may, I think what they refer to is localized publicity, not widespread publicity.
BY MS. BRANSCOME:
Q If you can, can you refer me to the

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language in the paper that references that.
A So I see a mention of it in the -- on page 1412, second column, last paragraph, about seven or eight lines from the bottom, the sentence beginning: "Two class action lawsuits were filed in 2014 concerning possible carcinogenic effects of body powder, which may have influenced recall."
Now, there's a reference there, but the reference doesn't indicate where those class actions were. And now I'm going to look in the Discussion section to see if there's any indication. If anyone knows whether there is or if there is not -- I haven't looked for this specifically. I just have a vague memory of them referring to localized publicity, but... (peruses document.)
Well, in my very quick scanning, I don't see reference to these being local. You people might know whether these two lawsuits that they refer to in the Reference section, whether they were local in this area. And this is North Carolina, is it?
Q Well, so that's -- that's a question I have for you, Dr. Siemiatycki. On page 1412, the paragraph -- the last full paragraph on the second

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column seems to suggest that data was collected from a number --
A Oh.
Q -- of different states across the United States, correct?
A Correct. Correct.
Q And so at least based on your review as you sit here today, the authors do not seem to have limited the potential effect of publicity of the class action lawsuits to a precise region, correct?
A That seems to be the case.
Q Okay.
A Yes.
Q And so your understanding or your testimony earlier that the publicity was only localized, you're not able to point me to anything in the article to support that, correct?
A That's correct.
Q And in fact, in the two portions of the Schildkraut article that discuss the publicity, there is no specific reference to it being limited to an area, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: In the two -- sorry.

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BY MS. BRANSCOME:
Q So there's one discussion of the potential public -- the potential effect of publicity, which is on page 1412.
A Yeah.
Q And then there is a second discussion of it on page 1416 --
A Yes.
Q -- in the Discussion section, and neither of those two sections talk about awareness of the class action lawsuits being limited to a specific geographic region, correct?
A That's correct.
Q In fact, the language that the authors use is a heightened awareness of the exposure as a result of two recent class action lawsuits, and they discuss just publicity, correct?
A Yes, I think so.
Q Okay. Are you relying --
A In that second paragraph in the discussion, the authors seem to discount the -- the recall bias hypothesis or to minimize it, and I -- I -- I don't support -- or the opposite of what they're saying. I just note that they don't seem to be enthusiastic about that hypothesis that

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it's strictly due to response bias.
But go ahead and --
Q The authors do recognize, though, that there is a possibility of recall bias may have caused some inflation of the odds ratios, correct?
A Yes.
MS. PARFITT: Wait, that's part -- that's part of the sentence. Objection.
THE WITNESS: Yeah. Yeah.
BY MS. BRANSCOME:
Q Are you relying on Penninkilampi 2018 for your opinions in this litigation?
A My opinions were informed before I knew about that article.
Q Do you believe that the Penninkilampi 2018 study supports your conclusions in this litigation?
A It's consistent with my conclusions. A little bit like Berge, the fact that they didn't pick up any studies that I hadn't -- that I had not picked up reassures me that there was nothing amiss in my search of the literature.
There were some differences in which studies they included in their meta-analysis and which data. I'm happy with the decisions -- the

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judgments I had made about it. So there are some minor variations there. But essentially they found the same thing that I found, because we're all working with the same data.
Q Okay. Did you do an independent verification that the data Penninkilampi reports in his article is indeed accurate?
MS. PARFITT: Objection. Form.
THE WITNESS: By the data, you mean the results that he put into his meta-analysis?
BY MS. BRANSCOME:
Q For example, did you look at the reported data in the tables in the Penninkilampi article and compare it to the underlying studies to see if they matched?
A I don't recall doing that comparison. I'm not sure why I would want to.
Q If there were errors in the reporting of any of the odds ratios or confidence intervals in the Penninkilampi 2018 paper, would that call into reliability the meta-analysis, in your opinion?
MS. PARFITT: Objection. Form.
THE WITNESS: It depends on the nature of the errors. If there was one decimal point typo sort of thing, it would have absolutely no

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impact on the bottom line result. Some errors might have large effects, so it would depend what the errors were.
But since his studies were mostly the same as the ones I had used and the same ones that Berge had used, and since the results that he had taken out of those studies were mostly the same ones I had taken out and that Berge had taken out, I fully expected his bottom line meta-analysis to produce the same results.
BY MS. BRANSCOME:
Q The Penninkilampi study does not consider or include the Gates 2010 cohort study, correct?
A Correct.
Q Do you think Gates 2010 - and if you would prefer to refer to Penninkilampi, it is tab 20.
A Yeah.
Q In your opinion, is --
MS. PARFITT: I have a clean one right here with the -- if we use two books, we can do it to save time, but --
THE WITNESS: Sorry?
MS. PARFITT: Do you want that?

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THE WITNESS: No. I'm actually looking for my copy of the Gates 2010.
You're going to ask me about his use of -- Gates 2010?
BY MS. BRANSCOME:
Q I was simply just going to ask you, is Gates 2010 a significant study, in your opinion, to leave out of a meta-analysis on this topic?
MS. PARFITT: Objection. Form.
THE WITNESS: A significant study. It -- in my view there are flaws with that study, but there are flaws with many epidemiologic studies. It's not -- that's not a reason to exclude them. I would include it but take note of the flaws, including the fact that their reference category for their odds ratios for their relative risk estimates was not an unexposed group, but it was a group that combined women who had never used talc with women who had used it occasionally.
BY MS. BRANSCOME:
Q Are there any other errors in the Gates 2010 study? And if you'd like to refer to it --
MS. PARFITT: Thank you.
THE WITNESS: Okay. Let me find my copy of -- yeah, here we are -- Gates 2010.

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Well, yes, there are some flaws with it, but they're related to the fact that this builds on the Nurses' Health Study, which is a good and well deservedly recognized, good prospective cohort study which focused on many factors in women's lives, including predominantly nutritional reproductive, hormonal factors, and all kinds of diseases, all heart disease, diabetes, et cetera, et cetera. There have been hundreds and hundreds of publications that have come out of it.

Their collect- -- the collection of talc information in the Nurses' Health Study was very weak. The questionnaire was conducted in 1982. It was part of a biannual follow-up mailed questionnaire. The question itself and the structure of the question itself I find very weak from the point of view of designing questions for questionnaires. I mean, I -- I could read it into the record, but it's in the -- it's in the -- it's quoted in the Gertig paper, and it's actually -- I've seen that page of the questionnaire, and it's -- I find it ambiguous as to how women would answer that question.

And it's only one question for that point in time. There was never any follow-up. So

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between 1982 and 2007 or so, when the follow-up of the -- for the Gates analysis ended, they had no idea whether women were exposed -- whether women who had been exposed in 1982 were in exactly the same exposure category in 1990, in 2000, in 2005 and so on. They made the assumption that women's exposure status was stable for 25 years. And so that's a major weakness of the analysis of talc and ovarian cancer in -- from this study.

BY MS. BRANSCOME:

Q So in your view, was it proper for the Penninkilampi authors to leave Gates 2010 out of their meta-analysis?

A That's not what I said. That's not what I said.

I -- I think to go down the road of making value judgments about each of these studies and including them or not including them would end up in the need for many days of deposition and cross-examination, because each of those -- any decision about any study can be argued umpteen ways. And that's why I took the decision early on not to make exclusions based on my judgment of the quality of the study.

Q Do you personally know any of the

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authors of the Penninkilampi 2018 publication?

A No, I don't.

Q Do you know or have any information about the source or sources of funding for the Penninkilampi article?

A No, I don't, no. I -- I would add, though, that the inclusion or exclusion of Gates 2010 probably didn't affect the bottom line result of their meta-analysis by more than 0.01 decimal point of the odds ratio.

Q But did they publish any type of sensitivity analysis that would let you specifically draw that conclusion?

A Well, I -- I have done one myself where I dropped each of the studies in order to see what would be the impact if that study had been dropped. And there's hardly -- no study has more than a 1 decimal -- you know, 0.01 decimal point on the odds ratio.

So we could argue about the merits of any of these studies or demerits, but the impact of including them or excluding an individual study is pretty minimal.

Q Shushan 1996 is one of the studies you did not include in your main meta-analysis,

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correct?

A Correct.

Q And you reported that you did not include it because the report was quite cryptic regarding the data collection and the talc exposure variable, correct?

A That's correct.

Q What did you mean by the report was quite cryptic regarding the data collection?

A So I have to take a couple of minutes to review that -- to look at that paper to answer your question.

Well, so the first thing that strikes me -- and I haven't read the description of how they collected the data. The first thing that strikes me is they have a table, Table 2 on page 15, with some information about these various variables, including talc exposure. And the two categories of talc exposure that they describe in this table, one is called "Never - seldom," and the other one is called "Moderate - a lot." I don't know what that means. So that's one element -- how they present it and how they analyze the data.

But I think actually how they collected

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the data also led me to describe the -- the information on exposure as being cryptic.
Q Okay. Are you familiar with the 2018 paper by Mohamed Taher and others entitled "The systematic review and meta-analysis: The association between perineal use of talc and risk of ovarian cancer"?
A Yes, I am.
Q Okay. Have you read the Taher 2018 manuscript?
A Yes. I haven't read all the appendices, but I basically read enough that I know what's in it.
Q Did you have access to the Taher 2018 article before it was published?
A I don't think it's been published.
Q How did you get access to the Taher manuscript and the appendices?
A I heard about -- I first heard about the Canadian Department of Health advisory, or whatever the word is, about talc and ovarian cancer in the public media. And I -- I think in the news report that I saw, there was a reference to Taher -- the Taher paper. That's how I first learned about something by them.

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And I wrote to Ms. Parfitt -- I sent a message to Ms. Parfitt asking her if she knows anything about this and has that information, and she wrote back, I think, and said, No, I thought you might have -- know something about it and have information.
MS. PARFITT: And -- and, Dr. Siemiatycki, you're not to discuss --
THE WITNESS: Okay.
MS. PARFITT: -- discuss our communications.
THE WITNESS: Okay.
Subsequently, Ms. Parfitt sent me the Taher paper.
BY MS. BRANSCOME:
Q And when -- when did you first request the Taher paper and appendices from Ms. Parfitt?
A I think in December 2018.
Q When were you provided with the Taher manuscript and the appendices and supplemental tables?
A Within a few days after that.
Q Do you know personally any of the authors on the Taher manuscript?
A I know one of them.

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Q Which author do you know?
A Daniel Krewski.
Q You have published many papers with, is it, Dr. Krewski?
A Yes.
Q Is that correct?
A Yes. Yes, it is.
Q How many papers have you published with him?
A I'll look at my CV and count.
Q Would it be fair to say over 20?
A Oh, I would be surprised if it was that high. But if you've counted, I won't contradict what you -- what you say.
Q Let's do it this way: Would all of the papers that you have coauthored with Dr. Krewski be listed on your CV?
A Yes.
Q Have you discussed your opinion on talc and ovary -- ovarian cancer with Dr. Krewski?
A No.
Q Have you discussed your opinion on talc and ovarian cancer with any of the authors of the Taher manuscript?
A No.

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Q Have you spoken to or otherwise communicated with Dr. Krewski about your involvement as an expert in this litigation?
A No, I haven't.
Q Do you know if the Taher manuscript has been accepted for publication?
A I don't know if it's been submitted for publication.
Q Do you know anything about the source or sources of funding for the Taher 2018 manuscript?
A I don't have any privileged information about that, but I seem to recall in the manuscript they're saying something about funding from Health Canada.
Q Is it fair to say that your knowledge with respect to the source or sources of funding of the Taher manuscript is limited to what is written in the manuscript itself?
A Yes.
Q Did you attend the National Cancer Institute directors meeting held in Lyon, France, on July 11th through 13th, 2018?
A No, I did not.
Q Now, the Taher 2018 manuscript contains a meta-analysis, correct?

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A Correct.
Q And Taher 2018 calculates an overall relative risk of 1.28, correct?
MS. PARFITT: If we could just get that in front of him.
MS. BRANSCOME: Oh, of course.
MS. PARFITT: Do you have your copy? I appreciate that.
MS. BRANSCOME: It is tab --
MS. PARFITT: I think he may have it as well and --
THE WITNESS: I have it --
MS. PARFITT: Make that a little easier and more quicker.
MR. TISI: Do you want to mark it?
MS. BRANSCOME: We have already marked Dr. Siemiatycki's binder.
MR. TISI: Okay. We can --
MS. BRANSCOME: I believe that contains the -- the manuscript and the exhibits.
MS. PARFITT: And that is binder 6, Exhibit 6.
MR. TISI: You said binder, going with his or the one --
MS. PARFITT: Exhibit 6.

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MS. BRANSCOME: Exhibit 6 is Dr. Siemiatycki's copy of the Taher manuscript with the appendices and supplemental tables.
BY MS. BRANSCOME:
Q Is that correct?
A That's correct.
MR. TISI: And that's in his binder, Exhibit 6.
THE WITNESS: I don't -- I didn't bring the supplemental tables and appendices with me.
BY MS. BRANSCOME:
Q Okay. So could you just describe for the record the contents of Exhibit 6. It is marked, but just so that I can follow along.
A This document?
MR. TISI: No, the whole thing.
THE WITNESS: Oh, the whole -- the whole thing. It contains various meta-analyses, so the Berge, Penninkilampi, Huncharek, just the meta -- main meta-analyses that have been done.
MS. PARFITT: And, Counsel --
THE WITNESS: Langseth.
MS. PARFITT: Right.
-- in light of the fact he has his in front of him, Exhibit 6, is there a corresponding

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one in the binders you gave him? That may help.
MS. BRANSCOME: It's tab 31.
MS. PARFITT: Thank you.
Tab 31. I appreciate that.
No, you can keep yours.
THE WITNESS: Okay.
MS. PARFITT: There you go, just for the record. Okay. Thank you.
BY MS. BRANSCOME:
Q So my question to you, Dr. Siemiatycki, is Taher 2018 calculates an overall relative risk of 1.28. Is that correct?
A That's what it says in the abstract, yes.
Q And the confidence interval that they report is 1.2 to 1.37, correct?
A Yes.
Q So the overall relative risk as well as the confidence interval reported in the Taher 2018 paper is very similar to the overall relative risk and confidence interval that you report in your analysis for the MDL, correct?
A That's correct. Which is not surprising.
Q And if you could turn to page 49 of the

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Taher paper. You see the Conclusion section?
A Yes.
Q The authors of the Taher paper state in the Conclusion section: "Consistent with previous evaluations, the IARC in 2010 and subsequent evaluations by individual investigators, the present comprehensive evaluation of all currently available relevant data indicates that perineal exposure to talc powder is a possible cause of ovarian cancer in humans."
First, did I read that correctly?
A Yes.
Q Okay. Do you agree first that the Taher 2018 paper represents a comprehensive evaluation of all currently available relevant data?
A Yes. I haven't -- I haven't done the same comparison between which studies and which data points from each study they used compared to the ones that I've used. I did that for the Berge and for the Penninkilampi, comparing theirs with mine. I haven't done that for theirs. So I -- I assume that they used basically the same studies and the same results from each study.
But, you know, to answer -- I'm quite sure that they did this comprehensive evaluation

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of all currently available, but to answer that strictly, I would want to do a comparison of the two. But I'm willing to accept.
Q Okay. And we see here even in this sentence that we just read that there's a reference there to the IARC publication in 2010. We've already discussed that, correct?
A Yes.
Q And then there's a reference to subsequent evaluations by individual investigators, and there's a reference there to articles or studies 3, 5 and 69. Do you see that?
A I see that.
Q And looking at the reference pages, beginning on page 51, would you agree that reference 3 is the Berge analysis, this citation is to 2017, correct?
A Correct.
Q Five is Penninkilampi, correct?
A Correct.
Q And the last reference, which is 69, is to the Terry meta-analysis. Do you see that?
A Terry is not a meta-analysis. It's a pooled analysis. But I see that, yes.
Q Okay. So the reference in the Taher

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manuscript to reference 69 is to the Terry pooled analysis from 2013, correct?
A Correct.
Q And so you agree that at least the Taher authors considered the Berge, Penninkilampi, and Terry studies.
MS. PARFITT: Objection. Form.
THE WITNESS: Were aware of. I'm not sure what you mean by considered. They -- they referenced it. I don't know that they considered it in their -- I don't imagine that there's any place in their statistical analysis where they introduced data from any of those papers. They're just acknowledging that those other meta-analyses found the same thing that they found.
BY MS. BRANSCOME:
Q So perhaps we have a different understanding of the word "considered."
A Okay.
Q Would you agree that a fair reading of their Conclusion paragraph would indicate that the Taher authors were first aware --
A Yes.
Q -- of Terry, Berge and Penninkilampi?
A Yes.

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Q And that they examined those studies closely enough at least to reach the conclusion in their own mind that their results were consistent with those findings.
MS. PARFITT: Objection. Form.
THE WITNESS: Yes.
BY MS. BRANSCOME:
Q Are there any scientific publications that were available to you during your review in connection with your formation of opinions in the MDL that were not available to the authors of the Taher manuscript?
MS. PARFITT: Objection. Form.
THE WITNESS: So are you talking about the meta-analysis that -- are you talking about studies that went into meta-analysis or are you talking about the, you know, 200 or 300 references in my bibliography?
BY MS. BRANSCOME:
Q Fair enough.
Are there any studies that you included in your meta-analysis that, at least to your knowledge, were available to you and were not available to the Taher authors?
MS. PARFITT: Objection. Form.

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THE WITNESS: Oh, they would have been available because all of my -- the studies I used are in publicly available literature, and I'm sure they were available.
BY MS. BRANSCOME:
Q Okay. Do you have any criticisms of the Taher 2018 meta-analysis?
A I haven't evaluated it closely enough to -- to formulate criticisms or praise or --
Q Now, you testified earlier that there was a flurry of activity in December surrounding the information from Health Canada and the Taher manuscript.
Is there a reason why you have not reviewed the Taher manuscript in detail and formed an opinion about whether you agree or disagree with its analysis?
MS. PARFITT: Objection. Fully misstates his testimony. Form.
THE WITNESS: I -- I thought that it would have absolutely no bearing on the results and the opinions that I expressed in my report, plus I didn't have time to do such a review. And so the combination of those two things made it a simple decision not to devote precious time and

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effort to a -- a futile activity.
I'm not uninterested in what they did or what they found, but I can predict pretty quickly what they did and what they found, and I -- I know the studies that they reviewed, that they had access to. There's nothing that they would find that I wouldn't be able to predict.
MS. BRANSCOME: Okay.
Now may be a good time to take a break.
MS. PARFITT: Sure. Okay. Very good.
MS. BRANSCOME: Let's go off the record.
MR. TISI: Are we switching examiners too?
MS. BRANSCOME: I don't know. That's why --
MS. PARFITT: Oh, fair enough. Fair enough.
THE VIDEOGRAPHER: We're going off the record at 6:22 p.m.
(Recess.)
THE VIDEOGRAPHER: This begins disc number 5 in the deposition of Jack Siemiatycki. We are going back on the record at 6:40 p.m.
BY MS. BRANSCOME:
Q So, Dr. Siemiatycki, if you could open

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back up to the Taher manuscript again. I believe it's in your binder that's been marked as Exhibit 6, and specifically, if you could go to Figure 3 on page 39.
Have you looked at Figure 3 from the Taher 2018 manuscript before now?
A No, I haven't. I may have glanced at it going through it, but I haven't examined it.
Q Did you look at anything in the Taher manuscript to support your opinion that there is at least evidence compatible with the dose-response relationship between perineal use of talc and ovarian cancer?
A I didn't look for that in this paper.
Q If you could look at page 25 of the Taher paper.
Do you see here that the authors of the Taher manuscript describe the summary of evidence for each of the Hill criteria of causation? Do you see that?
A I see that.
Q And you are familiar with the Hill -- the Hill criteria of causation, correct?
A I'm familiar with what they call the Hill criteria and what some people call the Hill

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criteria, but which are not criteria and shouldn't be called criteria.
Q Understanding that you have specific views about the appropriateness and application of it, you are at least familiar with what is sometimes referred to as a Bradford Hill analysis or the Hill criteria, correct?
A I don't -- again, the phrase "Bradford Hill analysis" doesn't mean anything. I don't think you would find that phrase in any epidemiology or statistics textbook.
Q Are you saying as you sit here today, Dr. Siemiatycki, you've never heard of the Hill criteria?
MS. PARFITT: Objection. Misstates his testimony.
THE WITNESS: No, I've heard of it, and I'm saying that it's a misnomer. And so I'd prefer if the correct terminology is used when -- if you're asking me questions about it.
BY MS. BRANSCOME:
Q The authors of the Taher manuscript use the term "Hill criteria" --
A Yes.
Q -- in their Table 2, correct?

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A Yes, they do.
Q And there is a discussion under the -- what they refer to as a criterion for strength of association, correct?
A Yes.
Q And the Taher authors report that out of 30 epidi- -- epidil- -- epidemiological studies -- it's late in the day -- six reported positive association of statistical significance with a risk value, relative risk or odds ratio of 1.5 or greater.
Is that description of the epidemiological studies accurate?
A I don't know. I haven't counted. I haven't done that kind of counting, which is irrelevant and wrong from a statistical and epidemiological point of view to do it. So I haven't done it, and I can't confirm that there are six that report odds ratios greater than 1.5. I could do that if you want me to. I can look through studies and see.
But there's no -- there's no scientific purpose in doing that. It's a meaningless piece of information.
Q Would you criticize the Taher authors

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for their discussion of the Hill criteria?
A Yes.
Q And you have explained your criticisms about the Hill criteria in both your trial testimony and in your prior deposition testimony, correct?
A I can't remember the details, but I -- I guess if I was asked about it, I explained what I thought about it.
My criticism -- I'm not sure what you mean by my criticisms of the term or of the concepts that the paper that Hill wrote in 1965, the ways -- the umpteen different ways that other people have interpreted it. What -- what are you referring to when you say I criticized? What did I criticize?
Q Have your views with respect to the use and application of the so-called Hill criterion changed since you testified in the Echeverria trial?
MS. PARFITT: Objection. Form.
THE WITNESS: They -- they haven't changed in 40 years.
BY MS. BRANSCOME:
Q Okay. Thank you.

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Now, we have just discussed three meta-analyses: The Berge meta-analyses, the Penninkilampi meta-analyses, and the Taher meta-analyses. Correct?
A Yes.
Q Would you agree that none of the authors of those three meta-analyses concluded that talc was a probable cause of ovarian cancer?
MS. PARFITT: Objection. Form.
THE WITNESS: The purpose of those meta-analyses was to estimate the meta-estimate of relative risk. In terms of the conclusion about probable causation, I think they all commented on it in their discussions.
And can you specify your question again, whether they concluded that it was a probable cause?
BY MS. BRANSCOME:
Q Correct.
A I'd have to look at the way they -- what conclusions they drew, I'd have to look at that.
Q Okay. If we could look at the Berge paper, which should be tab --
A Let me see, I think I have the latest issue of the Berge paper.

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Q 48 in my binder, but I don't know if you have a copy in yours, which might be faster.
A No, this -- I have the -- I have the current Berge paper. So...
Q At page 9, I believe.
Well, that's confusing to say page 9.
A Okay, I see that.
Q Okay. In reviewing the conclusion that the Berge authors reached, would -- did the Berge authors conclude that genital talc use was a probable cause of ovarian cancer?
A They did not indicate that they concluded that.
Q Okay. And same for the Penninkilampi study.
MS. PARFITT: Had you finished? Had you finished your statement.
THE WITNESS: Not quite.
There's a difference between the findings of a study and the inferences that are drawn from those findings. So the findings of their meta-analyses and the findings of the Penninkilampi meta-analyses and findings of the Taher meta-analyses are the same as my findings. All four agree on the findings.

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Interpreting and making inferences is a whole other bailiwick, a whole other activity, and they don't -- didn't conclude in this section that it's a probable cause. From the same evidence, I do conclude that it's a probable cause.
BY MS. BRANSCOME:
Q Right. And the same is true for the Penninkilampi officer -- authors, correct?
A Sorry, I have to go through it.
(Peruses document.)
I don't really agree with your statement. I don't think they conclude that it's probable or not probable. I don't see -- can you point me to a statement that would imply that it's not -- that they think it's not probable?
Q Do the authors of the Penninkilampi paper use the phrase, quote, suggestive of a causal association, in the Conclusion section?
A Yes, they do.
Q Okay. Would you say that "suggestive of a causal association" is equivalent to probable causation?
MS. PARFITT: Objection. Form.
THE WITNESS: That's a semantic question, and how different people and different

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cultures -- and I think these people are Australians -- how Australians tend to use the word "suggestive." I -- I don't read this in a way as to suggest that they don't think it's probable.
BY MS. BRANSCOME:
Q So you don't know from reviewing the Conclusion section one way or the other whether the Penninkilampi authors view perineal use of talc as a probable cause of ovarian cancer.
MS. PARFITT: Objection. Form, misstates his testimony.
Just answer the question.
THE WITNESS: Yes, that's right, I -- I don't.
BY MS. BRANSCOME:
Q Okay. And as we just looked at in the Taher manuscript, the Taher authors describe that the data indicates perineal exposure to talc powder is a possible cause of ovarian cancer in humans, correct?
And if you need the reference, it's page 49.
A That's correct.
Possible does not preclude probable, by

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the way. I'm not -- I'm not assume- -- are you assuming that they had in mind the IARC classification system and that these two categories are mutually exclusive?
Q My question to you, Dr. Siemiatycki, is did any of the authors of the three other meta-analyses, Berge, Penninkilampi or Taher, conclude in their papers that perineal talc use is a probable cause of ovarian cancer?
MS. PARFITT: Objection. Form. Asked and answered.
THE WITNESS: They did not use that word. But I would not infer that they don't think it's a probable cause from the write-up of their -- from their write-up. It is possible that they consider the description of this as a -- where is the word "possible"? Is that in the Conclusion?
BY MS. BRANSCOME:
Q It is.
A Oh, yeah, possible cause.
You know, they are -- I mean, I can't speak for them because I haven't spoken to any of them about this, but I don't think they're speaking to a legal audience. And the word

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"possible" here can cover a range of possibilities that includes probable.
So if something is possible, that means it could happen, and in their view or in some of their -- those authors' view, the possibility or the probability of -- of such a thing happening might be greater than 50 percent, and they might still describe it as a possible cause of ovarian cancer.
Q You would be --
MR. KLATT: Object. Nonresponsive.
Sorry.
BY MS. BRANSCOME:
Q You would be purely speculating to opine that the Taher authors, for example, when they used the term "possible" to describe the association, they actually meant probable, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: I didn't say they -- they actually -- I meant -- I said that it could include probable.
And so you are -- the sense of your question is to suppose or assume that their use of the word "possible" excludes the concept of

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probable, that they did not think it's -- because they used the word "possible," they absolutely denied that it's probable. And I -- that's what I'm disagreeing with.
BY MS. BRANSCOME:
Q Where I'm coming from is not relevant to the question that I'm asking, Dr. Siemiatycki. The question that I'm asking you is, do any of the authors of the three meta-analyses that we just reviewed, Berge, Penninkilampi, and Taher, describe in their papers the association between perineal use of talc and ovarian cancer as a probable causal association?
MS. PARFITT: Objection. Form.
BY MS. BRANSCOME:
Q Do any of them use that term?
MS. PARFITT: Objection. Form.
THE WITNESS: None of them use that term, but that doesn't preclude that they -- some of them believe it is probable.
MR. KLATT: Object. Nonresponsive.
BY MS. BRANSCOME:
Q You have no basis for concluding or even suggesting that any of these authors have the opinion that it is a probable causal association

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other than speculating based off of what you're reading on the page, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: Correct. Nor do I have any basis for assuming that they don't think it's probable on the basis of what I read.
BY MS. BRANSCOME:
Q When you write scientific manuscripts, Dr. Siemiatycki, are you careful about your word choice, particularly in your conclusion section?
MS. PARFITT: Objection. Form.
THE WITNESS: I try to be. I try to be.
BY MS. BRANSCOME:
Q Okay. If you could turn to tab 33 in your binder.
Are you familiar with the document that is located behind tab 33 in your binder there?
A I -- I think so. I -- mine had a different cover page when I printed it off, but that's fine. I'm -- I assume it's the same one I -- I had.
MR. TISI: It's not. It's not.
MS. PARFITT: What are you referring to?
MR. TISI: The draft article is not --
MS. PARFITT: Yeah, I know that.

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THE WITNESS: Is it the Draft Screening Assessment?
MR. TISI: No, that's not the same.
THE WITNESS: No?
MR. TISI: It's not.
MS. PARFITT: Do you have a copy of yours?
THE WITNESS: Yeah.
MS. BRANSCOME: Can we go off the record while we figure this out?
MS. PARFITT: Sure, that would be fine.
THE VIDEOGRAPHER: We're going off the record at 6:58 p.m.
(Pause in the proceedings.)
THE VIDEOGRAPHER: We're back on the record at 7:01 p.m.
BY MS. BRANSCOME:
Q Dr. Siemiatycki, you have a document in front of you that is labeled a "Draft Screening Assessment" dated December 2018; is that correct?
A Yes, I do.
Q And this is a screening assessment by the Environment and Climate Change Canada, Health Canada, correct?
A It's a branch of Health Canada or a

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bureau or division. I'm not quite sure.
Q Okay. And the document that you're looking at there is contained within a binder that we have previously marked as Exhibit 4, correct?
A Correct.
Q All right. Is this an item -- is this an item.
Is this Draft Screening Assessment a document that you considered in forming your opinions in this case?
A No, it isn't.
Q Why not?
A Because I was only aware of it a month or -- a month and a half or two months after I completed my report, and two years after I formed the main part of my opinion.
Q How did you obtain a copy of the Draft Screening Assessment by Health Canada?
A I think that this was on the internet. I think I --
THE WITNESS: Yeah, some other -- there should be a light button that we can press.
Excuse me. Excuse me, just maybe off the record for a second.
(A discussion was held off the record.)

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THE VIDEOGRAPHER: We are going off the record at 7:03 p.m.
(Pause in the proceedings.)
THE VIDEOGRAPHER: We are back on the record at 7:03 p.m.
BY MS. BRANSCOME:
Q Dr. Siemiatycki, we paused because the lights turned off, but my question to you is, how did you obtain a copy of the Draft Screening Assessment by Health Canada?
A Either it was sent to me by Ms. Parfitt or her staff, or I found it on the internet. And I can't quite remember now.
Q Do you remember when you first obtained a copy of the Draft Screening Assessment?
A My guess is just before I went on vacation for Christmas and New Years. So it would have been mid -- mid to -- mid-December, I guess, something like that.
Q Are you familiar with the process by which draft screening assessments are generated by Health Canada?
A No, not really. I was involved with this department of Health Canada 30 years ago, and I haven't been involved since. I don't know how

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they function really to produce these evaluations and reports.
Q Did you have any involvement, even tangentially, in the development of the Draft Screening Assessment by Health Canada?
A No.
Q Were you ever asked to consult on any of the content that ultimately ended up in the Draft Screening Assessment?
A No, I wasn't.
Q Were you ever contacted about potentially being involved in a Draft Screening Assessment of talc for Health Canada?
A No. Never.
Q You are aware that this is in fact a draft assessment by Health Canada, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: I see that's what it says on the cover page.
BY MS. BRANSCOME:
Q Are you aware of what further steps in the process must be taken before the draft assessment is potentially accepted or modified?
MS. PARFITT: Objection. Form.
THE WITNESS: I'm not familiar with the

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details, no.
BY MS. BRANSCOME:
Q What are you familiar with, if not the details?
A I remember seeing that there's a public consultation opportunity, and -- so I guess there will be a period of time during which they will accept public recommendations and comments. And I don't know if it's the same committee that will then review all of that or a committee that's higher up on the administrative pecking order. I don't -- I don't know what happens internally.
Q Do you intend to submit anything for the -- during the public comment period?
A I -- yeah, I hope to do so. I hope to do so.
Q What specifically do you intend to submit?
A I'm not sure yet. I -- I would probably submit an opinion supporting the notion that perineal use of talc is more likely than not related to ovarian cancer.
Q In your submission, do you intend to disclose your role in litigation involving talcum powder products?

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A Yes.
Q Do you believe --
A If I make such a submission, yes.
Q Why -- well, first of all, do you think it's important to disclose your involvement in the litigation if you were to submit something for public comment?
A Yes, I think it is.
Q And why is that?
A Because there's a potential conflict of interest, and they should know about it.
Q Would you also notify IARC of your role in litigation involving talcum powder products if you submitted something to them to suggest that a formal evaluation of talc be conducted?
A Yes, I would.
Q Is that for the same reason?
A Yes, it is.
Q Is the Draft Screening Assessment the type of material that you think it is reliable to base an expert opinion on?
MS. PARFITT: Objection. Form.
THE WITNESS: An expert opinion about what?
BY MS. BRANSCOME:

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Q About the potential relationship between talc and ovarian cancer.
MS. PARFITT: Objection. Form.
THE WITNESS: Are you asking if it would influence my opinion on the issue or --
BY MS. BRANSCOME:
Q So under- -- understanding that the Draft Screening Assessment came out after you had formed your opinion, I'm asking you that if that had not been the case, if it had come out while you were still forming your expert opinion, is this something that you would rely on?
A I would take cognizance of it, and I'm not sure whether it would persuade me in one direction or another on the strength of the evidence, but it -- it would certainly give me -- increase my comfort level to draw inferences to see what inferences other people draw. I won't necessarily follow their opinions, but I find it useful to know what inferences they would draw from it.
Q Is a Draft Screening Assessment the type of report or publication that you see cited in published scientific literature?
MS. PARFITT: Objection. Form.

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THE WITNESS: Not -- not -- in scientific literature, not so much, no.
BY MS. BRANSCOME:
Q The draft assessment -- first of all, are you familiar with the proposal with respect to talc that's contained in the draft assessment?
A Which proposal are you referring to?
Q I could refer you specifically to page --
MR. TISI: I spilled coffee on it too. Sorry. You get what you get.
BY MS. BRANSCOME:
Q -- on page 29.
A The Conclusion section?
Q Yes. Have you reviewed this before?
A I -- I might have looked at it quickly. But let me -- let me review it -- let me read it now. (Peruses document.)
You know, it refers to the fit of the -- their findings and conclusions with various articles of law in the Canadian Environmental Protection Act. I would have to know what those articles of law are that this conforms to, that these sentences purportedly conform to. I -- I have no reason to doubt what they say, but I -- I

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can't confirm.
Q So as you sit here today, are you capable or prepared to offer an opinion as to how the conclusions in the Draft Screening Assessment relate to other pieces of literature that we've discussed today?
MS. PARFITT: Objection. Form.
THE WITNESS: How they relate to -- or whether they're concordant with other pieces? It's difficult for me to say without studying this document more and seeing what the conformity is with the Canadian pieces of legislation that they refer to. So I -- I can't -- I can't give you much more than that.
BY MS. BRANSCOME:
Q So as you sit here today, could you -- do you have an opinion as to how the proposal in the Draft Screening Assessment with respect to talc relates to the current IARC classification of talc?
MS. PARFITT: Objection. Form.
THE WITNESS: By proposal, you mean the conclusion?
MS. PARFITT: The entire document.
THE WITNESS: You're -- you're

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describing the conclusion as a proposal? Or -- yeah.
BY MS. BRANSCOME:
Q Focusing specifically on the second paragraph where it says: "It is proposed to conclude that talc meets the criteria under paragraph 64(c) of CEPA as it is entering or may enter the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health."
MS. PARFITT: Objection. Form.
THE WITNESS: It's not a way of describing scientific evidence that I'm intimately familiar with. So I would need to review this document in more detail and be aware of the paragraph 64(c) of the CEPA.
BY MS. BRANSCOME:
Q And that is not something you --
A So I'm not --
Q -- have done as of today?
A It's not something I base -- today I couldn't say I agree with this or I don't agree with this.
Q Okay. And so this is not -- the Draft

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Screening Assessment by Health Canada is not something that you are relying upon in any way in offering your expert opinions in this case; is that correct?
MS. PARFITT: Objection. Form, misstates his testimony.
THE WITNESS: No. As I said, I didn't rely on this to form my opinion.
BY MS. BRANSCOME:
Q Okay.
MS. BRANSCOME: Could we go off the record just briefly?
MS. PARFITT: Of course.
THE VIDEOGRAPHER: We're going off the record at 7:15 p.m.
(Pause in the proceedings.)
THE VIDEOGRAPHER: We're back on the record at 7:16 p.m.
BY MS. BRANSCOME:
Q Dr. Siemiatycki, can you describe -- can you identify for me specifically the pieces of evidence that you would cite to in support of your opinion that there is evidence consistent with a dose-response relationship that was not considered by the IARC 2006 working group?

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A Can --
Q And I'm just looking for an identification of the papers.
A Let me just dig out -- I keep hiding things from myself.
MS. PARFITT: Okay.
THE WITNESS: Oh, there.
The primary pieces of evidence -- the primary piece of evidence is the analysis carried out in the Terry, et al., paper where they combined ten different studies from eight different research teams. They had by far the largest sample size of any conglomeration of studies ever conducted, enough to properly evaluate dose-response. And that's one of them.
The second one is the Schildkraut study, which is much smaller than the Terry study in terms of numbers.
And the third -- a third one, which was not part of the evidence that influenced my evaluation, is the latest version of the Berge paper which has some dose-response results in a table whose origin I don't completely understand, but ostensibly it gives dose-response trends that are significant and meaningful for duration and

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frequency of exposure. But I would put less weight on that until I fully understand what -- how they derived those estimates.
BY MS. BRANSCOME:
Q Okay. So the pieces of evidence that you would cite to in support of the idea that there has been a development that is supportive of a dose-response relationship between perineal talc and ovarian cancer since the IARC classification of talc as a 2B would be the Terry, the Schildkraut, and potentially the Berge analysis; is that correct?
MS. PARFITT: Objection --
THE WITNESS: Yes.
MS. PARFITT: -- to the reference of "potentially the Berge." Form.
BY MS. BRANSCOME:
Q You did not rely in any way on the analysis in the Berge 2018 paper for your conclusion that there is evidence compatible with a dose-response relationship between perineal talc use and ovarian cancer, correct?
A That's correct.
Q Okay. So looking first at the Terry 2013 paper. This is tab 14 or you're welcome to

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use your own copy if that's more convenient.
A Yep. There we go. Okay.
Q Did the authors of the Terry 2013 paper, did they conclude in their manuscript that they had observed a statistically significant dose-response relationship between the perineal use of talc and ovarian cancer?
A They reported two different ways of calculating the statistical significance of a trend. One of them was significant, and the other was formal, in terms of the conventional 0.05 statistical significance level, was not significant at that level.
Q And in fact in the abstract, the authors of the Terry paper state that: "Among genital powder users, we observed no significant trend, p equals 0.17, in risk with increasing number of lifetime applications," in parentheses, "assessed in quartiles."
Did I read that correctly?
A That's correct.
Q Okay. Now, in your 2016 report --
A Yeah.
Q -- you had the statement that: "The appropriate statistical test for trend is one that

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excludes the baseline unexposed category."
Do you remember having that sentence in your 2016 report?
A I remember the -- the idea being there, yes.
Q Okay. And you would agree that if you apply that statistical test for trend, meaning you exclude the baseline unexposed category, the Terry 2013 paper does not demonstrate a dose-response relationship, correct?
MS. PARFITT: Objection.
THE WITNESS: No.
MS. PARFITT: Misstates testimony.
THE WITNESS: So I would not conclude -- I would say that it demonstrates dose-response, but not at a statistical -- at a 0.05 statistical significance level.
And I would also -- I can't remember the wording and the context in the 2016 report that you're referring to, but I would imagine that I preceded that statement with some mention of the fact that it depends if you are using the overall risk among all exposed people compared to unexposed people as a complementary piece of information.

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And it's only in the context when you are using the -- all the exposed compared to all the unexposed, and at the same time carrying out an analysis of the different levels of exposure, that including the unexposed among the -- in that trend analysis becomes overlapping information with the overall -- the significance of the overall estimate.
BY MS. BRANSCOME:
Q Okay.
A This -- I'm not quite finished. Sorry.
So -- and because I don't want you to think that I believe or believed that on its own there is no evidence of dose-response. There is evidence of dose-response in the Terry analysis. The choice of which p-value to report on the trend analysis depends completely on how one combines that information with the ever exposed/never exposed information and the p-value for that. That when we want completely independent and separate strands of evidence to corroborate each other, then it's appropriate to exclude the unexposed from the p-value computation.
When you are using -- when you are not using the binary exposed/unexposed as part of the

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package of information to demonstrate causation, then the correct p-value is the one that includes the unexposed. So it depends how you use these things.
If I didn't qualify that statement that you read before, then I was in error.
Q If you did not have the Terry 2013 study --
A Yes.
Q -- set that aside for a moment, you did not have that data, would it still be your opinion that the perineal use of talc probably causes ovarian cancer?
A So --
MS. PARFITT: Objection. Form.
THE WITNESS: So just to be clear what the hypothetical supposition is, so the Terry paper doesn't exist, but the studies underlying the Terry paper still do exist, correct? Or they don't exist either?
So there are ten studies underlying the Terry reanalysis. Is your hypothetical question about the possibility that none of those studies existed or that they existed, but nobody actually put them together to combine an analysis? What

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are you positing?
BY MS. BRANSCOME:
Q Of those ten studies, which, if any of them, postdate 2006? Do you know?
A Most of them do. I would say -- I think the only one -- ones that were published before 2006 were a study by Chang and one or two of the components of Cramer's studies. I think the rest were all published post-2006.
Q Okay. Did you independently do an analysis of the potential dose-response relationship of perineal talc use and ovarian cancer?
MS. PARFITT: Objection. Form.
THE WITNESS: By "independently," you mean trying to replicate the Terry analysis? No. I don't see why I would be motivated to do something that someone else has already done.
BY MS. BRANSCOME:
Q Okay. So you are relying on the data as reported by Terry 2013 that you consider to be evidence in support of a dose-response relationship, correct?
A That's correct.
Q Okay. But the authors themselves do not

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conclude that there has been a statistically significant dose-response relationship established for the perineal use of talc and ovarian cancer, correct?
MS. PARFITT: Objection. Form, misstates the evidence.
THE WITNESS: I -- I didn't review what they concluded in the Discussion section. If you want, I could review that. And I -- I don't remember what -- what kind of narrative inferences they made about it.
BY MS. BRANSCOME:
Q Okay.
A You're asking me to confirm that they didn't conclude, so I would want -- their data in my mind indicates dose-response. How they interpret it -- as I said before, they're two separate things, the production of findings from research and the interpretation of those findings.
I am as capable of interpreting -- they aren't as capable of interpreting my findings from my studies as I am or they are as capable -- they have the right to. I have the right to interpret their findings. It's a different activity producing findings and then interpreting them. So

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how they interpreted their findings, I don't quite remember exactly what they said about it.

Q Okay.

MS. BRANSCOME: I am going to pass to counsel for Imerys at this time.

MR. KLATT: Can we go off the record for just a couple of minutes? Let me get organized.

THE VIDEOGRAPHER: We are going off the record at 7:31 p.m.

(Pause in the proceedings.)

THE VIDEOGRAPHER: We are going back on the record at 7:32 p.m.

DIRECT EXAMINATION

BY MR. KLATT:

Q Good afternoon -- good evening, Dr. Siemiatycki.

A Good evening. How are you?

Q I'm Mike Klatt. I represent Imerys Talc America in this case.

I don't know if you recall or not, but you and I had met about two years ago when you were giving a deposition in the Oules and Swan cases. Do you recall that?

A I do recall that.

Q Okay.

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A Very fondly.

Q Thank you.

I just have a few questions for you, and I want to go back and just make sure the record is clear on something.

Your testimony is you've had no contact or communications whatsoever with anyone with Health Canada regarding talc; is that correct?

A That's correct.

Q And you've had no contact or communications whatsoever with Dr. Krewski or anyone else who's an author of the Taher meta-analysis regarding talc?

A That's correct.

Q That's correct. Okay.

A minute ago I believe you told Ms. Branscome that if you continued to interact with IARC or have contact with Health Canada regarding the issue of talc and ovarian cancer, it's incumbent upon you to have a conflict of interest disclosure, correct?

A Yes. I said that.

Q And you would agree with me it would be important in evaluating any potential bias you have for the people at Health Canada and the

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people at IARC and the public generally to know that you had been a retained and paid expert by plaintiffs' counsel in the talc ovarian cancer litigation; is that correct?

A Sir, can you -- I think I already said that, but could you repeat? Maybe I'm misunderstanding.

Q Yes. I'm just saying such a conflict of interest disclosure on your part, it would be important to disclose not merely that you had been a consultant or merely that you had been involved in litigation involving ovarian cancer, but it would be important to specifically disclose that you had been a retained and paid expert by plaintiffs' counsel in the talc/ovarian cancer litigation. Correct?

MS. PARFITT: Objection. Form, asked and answered.

THE WITNESS: I -- I'm not sure I understand the distinction between this last affirmation and the one before. I -- yes, it --

BY MR. KLATT:

Q Well, we've had -- we've had other conflict of interest disclosures, and I put that in quotes, where people said that they had been a

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consultant, period. That wouldn't be sufficient, would it?

A I would --

MS. PARFITT: Objection. Form.

THE WITNESS: I would not do that.

BY MR. KLATT:

Q And we've had people say, I've been involved as an expert in ovarian cancer litigation. That wouldn't be sufficient either, correct?

MS. PARFITT: Objection. Form.

THE WITNESS: I would not do that.

BY MR. KLATT:

Q What you would do is you would say, I have been a retained and paid expert by plaintiffs' counsel in the talc/ovarian cancer lawsuits, or something essentially equivalent to that.

A I -- I would say something essentially equivalent. It's quite possible that if there was a submission to a journal, for example, or a manuscript, the journal may have a formulaic way of expressing that. So...

Q But wouldn't it be important to the readers to know which side of the litigation you

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had been on in evaluating your bias?
MS. PARFITT: Objection. Form, asked and answered.
THE WITNESS: I -- I would -- I would disclose the nature of my involvement.
BY MR. KLATT:
Q Including which side?
A Including which side I was consulting for.
Q Okay.
MR. KLATT: Can we mark this as the next exhibit?
MS. PARFITT: 14.
(Exhibit No. 14 was marked for identification.)
BY MR. KLATT:
Q Dr. Siemiatycki, you said earlier that you worked with Dr. Koushik; is that correct?
A Yes.
Q And what is your professional relationship with Dr. Koushik?
A We are members of the same academic department. We are down the hall from each other. Our offices are nearby each other. We have worked together on various projects.

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Q For how long?
A Ten -- 10 or 12 years now.
Q And she's very well educated, correct?
MS. PARFITT: Objection.
THE WITNESS: I'm not sure what you mean by that. She has a --
BY MR. KLATT:
Q Well, she has a Bachelor --
A She has a --
Q -- of Science in pharmacology from the University of Alberta.
A Correct.
Q She has a Master's in community health and epidemiological from Queen's University in Kingston, Ontario?
A Uh-huh.
Q She has a Ph.D. in epidemiology from -- in epidemiology and biostatistics from McGill University here in Montreal, correct?
A Correct.
Q And she's had a postdoctoral fellowship at Harvard in the U.S., correct?
A Correct.
Q And she is the principal investigator of the Prevention of Ovarian Cancer in Quebec, the

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PROVAQ study, correct?
A Correct.
Q And that's the study she is working on with you, correct?
A More I'm working on with her, but she's the lead on that.
Q And with the help of others in your group as well --
A With the help of others, yes.
Q -- correct?
And what I've handed you --
MR. KLATT: And what was the exhibit number?
MR. TISI: 14.
BY MR. KLATT:
Q Exhibit 14 is Dr. Koushik's web pages from the Environ Epi website. You're familiar with that website, correct?
A Yes, I am.
Q And you'll turn to the back page of the exhibit, the final page, and you will see it's copyrighted 2019, correct?
A Correct.
Q And let's just see what Dr. Koushik says about her research on the first page. She says:

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"My research program focuses on the epidemiology of ovarian and lung cancers." Correct?
A Mm-hmm, yes.
Q "Ovarian cancer is by far the most deadly of all gynecologic cancer. Most patients are diagnosed at advanced stages, leading to the poor prognosis, and we are currently limited in our ability to detect disease early." Correct?
A Correct.
Q She says: "There is overwhelming evidence that healthy lifestyle choices can reduce the risk of several cancers. However, we do not yet know of any effective ways to prevent the onset of ovarian cancer."
Would you agree with that?
MS. PARFITT: Objection. Form.
THE WITNESS: I'm sorry, I'm trying to think of what this sentence really means. It's kind of a -- it's kind of a stock sentence that is used in -- by epidemiologists when they're looking for funding and trying to convince funders that we don't know a lot, and therefore they need to give us money. So I can imagine part of this is cut-and-pasted from that sort of document.
BY MR. KLATT:

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Q Well, what it means is --
MS. PARFITT: Wait, wait. Please let him finish.
BY MR. KLATT:
Q Go ahead.
MS. PARFITT: Thanks, Mike.
THE WITNESS: There are some risk factors that are well established for -- for ovarian cancer, which Anita is very well aware of, genetic and certain reproductive and hormonal factors.
The evidence on talc is accumulating, and in my view is sufficient. Anita has not reviewed that evidence. And --
BY MR. KLATT:
Q Have you talked to Dr. Koushik at all about your involvement in the talc ovarian cancer litigation?
A She's aware that I'm involved in this.
Q Well, let's go on to see what she says here.
After saying: "However, we do not yet know of any effective ways to prevent the onset of ovarian cancer," she says, "the evidence on some lifestyle factors, such as alcohol intake,

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physical activity, and smoking, is suggestive but currently remains unclear." Correct?
A Correct.
Q She doesn't say one word about talc, does she?
A No.
MS. PARFITT: Objection. Form.
THE WITNESS: Not here, no.
BY MR. KLATT:
Q And then she goes on to say: "More research is greatly needed, especially in light of recent discoveries that demonstrate that ovarian cancer is a heterogeneous disease." She says: "I am the principal investigator of the Prevention of Ovarian Cancer in Quebec, PROVAQ study, a population-based case-control study conducted in 2011, 2016."
And one of the things she's evaluating in that study is talc, correct?
A Correct.
Q "This study provides" -- and I'm reading on -- "This study provides a rich data source for the study of multiple hypotheses on lifestyle factors and ovarian cancer. Current projects focus on associations with shift work, caffeine

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intake, and recreational physical activity." Correct?
A Correct.
Q She doesn't say a word about talc there, does she?
MS. PARFITT: Objection. Form.
THE WITNESS: She doesn't there because she hasn't started those analyses yet. She has started analyses -- or her -- with students on those other factors.
BY MR. KLATT:
Q And then flipping over to the next page, Dr. Koushik says: "Healthy lifestyle choices may also positively impact the health of ovarian cancer survivors. Indeed, until we know how to prevent ovarian cancers from occurring in the first place, cancer control through tertiary prevention aimed at improving prognosis and quality of life among those diagnosed is critical." Correct?
A Correct.
Q And again, no mention at all of talc, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: Correct.

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MR. KLATT: Let's mark that.
MS. PARFITT: This is now 15.
MR. KLATT: Have we marked that?
MS. PARFITT: I just now did. I was looking for the stickers. I'm going to get one -- here they are.
THE WITNESS: I have a different cover.
MS. PARFITT: It's a different one. That's yours.
THE WITNESS: Oh.
MS. PARFITT: This is different, this is a new item. Let me just put an exhibit on this one.
(Exhibit No. 15 was marked for identification.)
MS. PARFITT: Thank you.
Okay. You're done with this. And he's just showing you this one.
Do we have an extra copy, Mike, or is this it?
MR. KLATT: I've got an extra copy if you need it.
MS. PARFITT: Okay, that would be great. I will give him that one. Thank you very much.
BY MR. KLATT:

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Q So, Dr. Siemiatycki, I'm now showing you what we marked as exhibit -- what?
MS. PARFITT: 15.
MR. KLATT: 15?
MS. PARFITT: Yes.
BY MR. KLATT:
Q And it's from the Environ Epi website, your website, and it's the web pages discussing group research topics, correct?
A I -- I have to tell you I don't look at this website, and I haven't actually constituted it. It's my secretary or my assistant who does this. So I'm looking at it afresh to see what's there. Yeah.
Q Okay. Let's -- let's turn to the very back page, and again the copyright is 2019. That's this year, correct?
A Yeah. Yes.
Q And then if you will flip over to -- let's see. Well, let's start -- let's see.
Go first page, second page, third page -- the fourth page, there's a discussion there of the PROVAQ study of Dr. Koushik that we just talked about, correct?
A Yes.

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Q And the topic says: "Prevention of Ovarian Cancer in Quebec, the PROVAQ study, a case-control study of modifiable and genetic factors associated with the risk of ovarian cancer." Correct?
A I see that.
Q And it says Anita Koushik, that's Dr. Koushik, who we've just been talking about, and it says Jack Siemiatycki. That's you, correct?
A That's right.
Q And then it goes on to describe what the PROVAQ study is, and it says -- and I'll skip the first few sentences -- it says: "Primary prevention thus offers the most promising approach to reducing the morbidity and mortality associated with this deadly disease. Established preventive factors for ovarian cancer include high parity, long duration of lactation, oral contraceptive use, and tubal ligation." Correct?
A That's what it says.
Q Talc is not included in that list of established preventive factors, is it?
A It's not listed there, no.
Q "However, the ability to modify these

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reproductive factors is limited. There is suggestive evidence that modifiable factors in the vitamin D pathway, (sun exposure, diet), and inflammation pathway (antiinflammatory medication use, talc use for feminine hygiene) may play a role in ovarian cancer risk, though this research has been limited by small sample sizes, crude exposure measurement and lack of control for important confounders." Correct?
A That's what it says.
Q Did I read that correctly?
A Yes, you did.
Q So on this public website, your Environmental Epi website, Dr. Jack Siemiatycki doesn't say talc use causes ovarian cancer, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: I don't say anything on that website.
BY MR. KLATT:
Q Well, you -- your group doesn't say talc causes ovarian cancer, does it?
MR. TISI: Objection. Form.
THE WITNESS: In my opinion, this was created somewhere around 2009, 2010, 2012, in that

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ballpark. This feels to me like a cut and paste from the grant application of 2009 or 2010 that hasn't been changed.
There's not really a lot of motivation for us to -- besides just sort of putting our names and faces up there, our institution asks us to put something on this institutional website for a researcher. I haven't -- I've never looked at this.
BY MR. KLATT:
Q You or your organization --
MS. PARFITT: Wait. Mike -- Mike, excuse me, I think we're done.
THE WITNESS: I've never contributed to this or looked at it.
MS. PARFITT: No, no, Mike, unfortunately, your time is up.
MR. KLATT: You've --
MS. PARFITT: Mike, no more questions. I have a few questions. I think we're --
MR. KLATT: Are we -- are we done?
THE VIDEOGRAPHER: Yes.
MR. KLATT: All right.
MS. PARFITT: Thank you. I do have a few.

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Dr. Siemiatycki, I'm going to stay right over here for a moment, okay? And we can get through this. Okay?

MR. KLATT: Here, I'll give this back to you.

THE WITNESS: Hi.

MS. PARFITT: Tell me when you are ready.

THE WITNESS: Who are you?

MS. PARFITT: I know.

MR. TISI: Are we back on? Are we back on?

THE VIDEOGRAPHER: I didn't stop. Sorry, I --

MR. TISI: Oh, I thought we were off.

MS. PARFITT: Okay. We didn't -- we didn't know that.

CROSS-EXAMINATION

BY MS. PARFITT:

Q Dr. Siemiatycki, good evening --

Okay. Dr. Siemiatycki, good evening. I know it's been a long day, and I have a few questions, and I will be wrapping -- or jumping around a bit, so hopefully try and keep pace with me, and I'll try and speak slowly and -- so that

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we can move through the remainder of your deposition.

Dr. Siemiatycki, do you have an opinion as to whether the elimination of talcum powder use in the genital area is a lifestyle activity that is modifiable?

If you need me to ask the question again, I'm happy to.

A Yeah, I'm trying to think of how the word "modifiable" is used.

Q Is it preventable? Is the use of talcum powder products in the genital area a preventable activity?

A Yes.

MS. BRANSCOME: Objection.

BY MS. PARFITT:

Q All right. Thank you.

All right. You were asked some questions about the Taher article. You remember that?

A Yes.

Q All right. And is it your understanding that the Taher article is a meta-analysis that was formed as part of the Health Canada recommendation?

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MS. BRANSCOME: Objection.

THE WITNESS: I think it was ordered -- it was contracted in order to underpin the Health Canada evaluation. That's my --

BY MS. PARFITT:

Q All right. Now, it was not the only study or research that was conducted by Health Canada; is that correct? It was the meta-analysis that was conducted by them.

MS. BRANSCOME: Objection.

THE WITNESS: Sorry, I -- what --

BY MS. PARFITT:

Q The Taher study --

A Study.

Q -- is a meta-analysis; is that correct?

A Yes. Yes.

Q All right. And the Taher meta-analysis was one part of the information that formulated part of the Health Canada draft assessment?

A That's my understanding, yes.

Q All right. Now, Daniel Krewski, you indicated, was one of the authors of the Taher paper.

A Yes. He's listed.

Q And I believe you testified that you

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know Daniel Krewski.

A Yes, I do.

Q And I believe Mr. Klatt asked you whether or not you had reached out or perhaps Ms. Branscome asked you whether or not you have had any communication with anyone, verbal, oral, written, that had anything to do with Health Canada. Do you remember that?

A Yes, I do remember.

Q All right. And it's been many hours, but it was my understanding in response to that question, you did indicate that you had sent an e-mail to Daniel Krewski; is that correct?

MS. BRANSCOME: Objection.

THE WITNESS: I don't remember saying that.

BY MS. PARFITT:

Q Okay, let me ask you. Have you ever reached out to any member or author of the Taher meta-analysis?

A I -- when I learned about it, I sent an e-mail to Dan Krewski asking if this report was intended for publication; and if so, when it would appear, and I haven't -- I didn't have any response.

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Q All right. So you have had no communication with any of the authors of the Taher study or any of the members of Health Canada?
A No.
Q Okay. Now, you were asked some questions with regard to the Schildkraut study in particular. Now, what I'd like you to do is, if you can get that in front of you, and I believe it's part of the documentation in your binder, number 4.
And what I'd ask you to also do, if you will, is pull out your paper, your Terry paper -- your copy of the Terry paper, and maybe we'll go there first.
A Terry?
Q If you get the Terry. Do you have the Terry in front of you?
A Yeah, I've got it in front of me, yes.
Q Okay. Now, Ms. Branscome asked you and referred you to the abstract of the Terry paper. Do you recall that --
A Yes.
Q -- examination?
A Yes.
Q And I believe she focused your attention

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on the very last sentence of the Terry paper, the next to last sentence which started with "Among genital powder users."
Do you see that?
A I see that.
Q All right. And she asked you whether or not indeed the abstract section of the Terry paper said: "Among genital powder users, we observed no significant trend, p equals 0.17, in risk with increasing numbers of lifetime applications (assessed in quartiles)."
A I see that.
Q All right. You've had an opportunity to read this --
A I've read it --
Q -- article?
A -- several times over the last three years.
Q All right. Let me direct your attention to the actual paper, and specifically to -- not the abstract of the paper but to the section that's entitled -- I believe it's the Discussion section and it's over on page 817.
A Yes.
Q All right. Do you have that in front of

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you?
A Yes, I do.
Q And I believe it's a continuation of the Results section --
A Yes.
Q -- which starts on 815 and continues all the way over to the end of the document. Do you see that?
A I do.
Q All right. And specifically about halfway down on page 817 of the Results section of the Terry paper, what did the authors find as it pertains to whether or not there is evidence demonstrating dose-response as it relates to genital powder use and ovarian cancer?
A So are you referring to the sentence that begins "Although a significant increase"?
Q Correct.
A Or before that?
Q Whatever you need to read, but I was specifically --
A Okay.
Q -- referring to the "although." And you can read that paragraph, please.
A Okay. So I'll start at the beginning of

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that paragraph.
Q Please, if you will.
A Read out loud?
Q If you will.
A "We evaluated cumulative genital powder exposure as a composite variable of frequency and duration of use. We have observed similar increased risks of all nonmucinous subtypes of epithelial ovarian cancer combined across quartiles of genital powder compared with nonuse." The OR in the first quartile is 1.18 with confidence intervals. In the second quartile, it was 1.22. In the third quartile, it's 1.22. And the fourth quartile it's 1.37.
I didn't read the confidence intervals.
Q Are the confidence intervals for the quartiles you just discussed all statistically significant?
A Yes, they are.
Q All right. Please continue.
A "Although a significant increase in risk with an increasing number of genital powder applications was found for nonmucinous epithelial ovarian cancer when nonusers were included in the analysis with a p-value that's extremely small,"

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highly significant, "no trend in cumulative use was evident in analyses restricted to ever users of genital powder for trend .17. Taken together, these observations suggest that the significant trend test largely reflects the comparison of ever regular use with never use."

Q Okay, and if you would stop there.

What is the significance of the findings of the authors in that paragraph you just read as it pertains to whether or not this study shows a dose-response increase?

A Well, so my interpretation is that overall there is, for users compared to nonusers, a highly significant trend, and four -- among the four - there are four quartiles, and there is a fifth group called nonusers -- they have a relative risk of 1.0. And in those five groups, the relative risk -- the relative risk estimates go from 1.0 to 1.18 to 1.22, 1.22, 1.3, something, 7. Those five values indicate to me a tendency of increasing risk with increasing exposure. Whether it is -- whether there's formal proof of that in a -- from a statistical significance point of view is a secondary issue as to compared with whether the data are compatible

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with dose-response.

So as you may recall, in the IARC 2006 evaluation and in -- I guess in the Langseth paper, I think we indicated that we were very concerned about the consistency of increased risks, but found no evidence of dose-response, and that held back any inference that the categorization should be greater than a 2B.

The findings from Terry turn on its head the assumptions that were made at IARC that there was no evidence of dose-response. Now there is evidence of dose-response, whether or not it's significant by one test or another test.

Q All right. Thank you.

All right. Let me direct your attention, if I may, to the Health Canada document, specifically the Draft Screening Assessment dated December 2018. Again, I believe it's in your notebook 4.

A 6 -- yeah. Yes.

Q All right.

A Okay, I have it.

Q Now -- now --

A Sorry, the Taher or the Draft Screening Assessment?

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Q The Draft Screening Assessment, right.

A Yes.

Q Okay. And specifically, let me direct your attention to Roman number -- Roman numeral III of that document.

A Yes.

Q Okay.

MS. BRANSCOME: Michelle, would you mind helping me follow along?

MS. PARFITT: Oh, I'm sure.

MR. TISI: I can give you my copy.

MS. PARFITT: Sure. Absolutely.

MR. KLATT: You may want those.

MS. BRANSCOME: Thank you. What page are we on?

MS. PARFITT: Counsel, I'm on Roman numeral III.

MS. BRANSCOME: Oh, the page -- I had a section number that I couldn't find --

MS. PARFITT: No. At the bottom it has a Roman numeral III.

BY MS. PARFITT:

Q Dr. Siemiatycki, referring you to the -- first, second, third -- fourth full paragraph of the Draft Screening Assessment, the fourth full --

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A Begins with "full"?

Q No, it begins with "The meta-analysis."

A "The meta-analysis." Yep.

Q Correct.

Would you please -- does it state: "The meta-analysis of the" -- am I reading this correctly?

"The meta-analysis of the available human studies in the peer-reviewed literature indicate a consistent and statistically significant positive association between perineal exposure to talc and ovarian cancer."

Did I read that correctly?

A Yes, you did.

Q All right. Is that your opinion, Dr. Siemiatycki, based upon your review of the totality of the literature on talc powder -- talcum powder use and ovarian cancer in the genital area?

A Yes, it is.

Q All right. It goes on to say: "Further available data are indicative of a causal effect."

Did I read that correctly?

A Yes, you did.

Q All right. Is it your opinion based

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upon the totality of not only the epidemiological data and findings but mechanistic data, animal and in vivo data, that indeed the data is indicative of a causal effect?

MS. BRANSCOME: Objection.

MR. KLATT: Objection. Form.

THE WITNESS: I believe it is more likely than not that there is a causal relationship between exposure to talc powder and ovarian cancer. And if those two sentences are taken to be equivalent, then I agree with the sentence.

BY MS. PARFITT:

Q Well, let me ask you this, Dr. Siemiatycki: You've read the draft assessment, and do you have -- is it fair to say that the methodology that the authors performed throughout the course of this particular draft assessment is the same type of methodology that you have performed for purposes of preparing your report and offering the opinions that you have and will continue to offer the court in -- in the litigation involving talcum powder use and ovarian cancer?

MS. BRANSCOME: Objection.

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THE WITNESS: The authors of this report I think include a group -- a multidisciplinary group, including toxicologists and possibly environmental scientists. I'm not familiar with them, so I can't say for sure. And in that sense, they cover a broader disciplinary background than I cover myself. So in that sense, they have a broader scope to evaluate the totality of the evidence than I have.

Their evaluation of the epidemiologic evidence seems in line with my own, and I have no reason to doubt the validity of their toxicologic analyses of the evidence.

BY MS. PARFITT:

Q All right. Dr. Siemiatycki, specifically let me refer you to page 15, and it's entitled "Perineal Exposure to Talc." And let me know when you get there.

A Yes, I'm there.

Q All right. Based upon your review of that section beginning on page 15, and I believe it goes all the way through page 21, are you able to -- do you have a sense as to the methodology again that the authors of the draft assessment employed in order to arrive at their causal

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assessment?

MS. BRANSCOME: Objection.

THE WITNESS: When you say "methodology" --

BY MS. PARFITT:

Q Mm-hmm.

A -- I'm not sure if you're referring to sort of high level methodology like collecting original data, evaluating it, weighing it, and making inferences on the basis of that data.

BY MS. PARFITT:

Q What I'm asking is, did the authors perform a Bradford Hill-like causality assessment in the performance of their study entitled Draft Screening Assessment?

MR. KLATT: Objection. Form.

THE WITNESS: You're saying in the pages between 15 and --

BY MS. PARFITT:

Q Correct. I'll shorten it by --

A -- 21?

Q Correct. Correct.

And if I can refer your attention to or direct you to page 20.

A They commented on various considerations

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that Bradford Hill mentioned in his article.

Q And which ones did they provide information and findings on?

A They commented on the strength of the association, on consistency, specificity, temporality, biological gradient, biological plausibility, and coherence.

Q And what did the authors conclude -- after looking at the various Bradford Hill factors, what did they conclude in that last paragraph of their Bradford Hill assessment?

A "Suggests a small but consistent statistically significant positive association between ovarian cancer and perineal exposure to talc. Further available data are indicative of a causal effect."

Is it -- is that what you're referring to?

Q Yes. And do you agree with the authors of the draft report of December 2018, when they conclude that: "The most recent meta-analysis detailed, Taher 2018, and consistent with the Hill criteria suggest a small but consistent statistically significant positive association between ovarian cancer and perineal exposure to

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talc. Further available data are indicative of a causal effect"?
A Yes.
MR. KLATT: Objection to form.
BY MS. PARFITT:
Q Thank you. All right.
Let me ask a couple other questions, and I need you -- if you will, can you reach over there, I believe it was exhibit number -- do you see your book on occupational diseases? I think it's under -- there you go. Okay.
Okay. Now, you were asked many hours ago some questions regarding the book Risk Factors for Cancer in the Workplace.
Do you recall that?
A Yes, I do.
Q All right. And that is indeed a book that was authored by you, Jack Siemiatycki, correct?
A Correct.
Q All right. And I believe you were asked whether there was anything in your book that described the methodology that you have employed over the course, and I believe you said the last four decades or almost four decades.

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Do you recall those questions?
A Yes, I do.
MS. BRANSCOME: Objection.
BY MS. PARFITT:
Q All right. Where in that book, if there is something in that book, does it describe the methodology that you have employed over the course of the last four decades that you still employ today in your analysis and opinions and findings in the talcum powder product litigation and ovarian cancer?
MS. BRANSCOME: Object to form.
THE WITNESS: I'm looking for -- well, I guess the main thing I would -- I would summarize that --
BY MS. PARFITT:
Q And could you tell us for the record --
A Yes.
Q -- Dr. Siemiatycki, where you are?
A Where I'm reading?
Q Yes, please.
A Thank you. I'm looking at page 298 in this book, and I -- did you provide a copy of that chapter?
MR. TISI: Doctor, you have copies --

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you have copies in that binder that you had printed out.
MS. BRANSCOME: May I have a copy if he is going to read from it?
MS. PARFITT: Absolutely. And I thought we had -- do you have any copies in there?
THE WITNESS: Oh, for this --
MS. PARFITT: No.
MR. TISI: It wasn't marked. It was in the stuff you printed out.
MS. PARFITT: I think I've got one here.
(A discussion was held off the record.)
MS. PARFITT: Ms. Branscome, here you go. Here's copies.
And let's have this marked as now exhibit -- I'm not sure what we're up to.
MR. TISI: We're up to 18. 18.
MS. PARFITT: 18. Okay.
And for the record, we are marking the face sheet of the book Risk Factors for Cancer in the Workplace by Jack Siemiatycki, and specifically the table --
MS. BRENNAN: I have 16.
MR. TISI: No, because he marked --
MS. BRENNAN: Yeah, 14 --

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MR. KLATT: Actually, it should be 16.
MS. PARFITT: 16? Thank you. 16.
All right. We are now marking as Exhibit 16 the book entitled Risk Factors for Cancer in the Workplace by Dr. Jack Siemiatycki, which specifically includes the table of contents, Chapter 7, "Interpretation of Findings," pages 297 through 308.
MR. DONATH: Is that an excerpt, not the whole thing?
MS. PARFITT: It is -- it is not. We'll make the book available, but it's just the excerpt.
(Exhibit No. 16 was marked for identification.)
MS. BRANSCOME: Did someone just join the line?
THE REPORTER: They hung up.
THE WITNESS: Shall I read a couple of paragraphs from this?
BY MS. PARFITT:
Q Well, the question was -- the question was whether or not there was any bases or writings that discussed the methodology that you've employed over the last four decades, and you

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commented that it was in your book.
MS. BRANSCOME: Object --
BY MS. PARFITT:
Q So please tell us what's in your book.
MS. BRANSCOME: Object to form.
THE WITNESS: Well, I -- I won't read the whole book.
BY MS. PARFITT:
Q I appreciate that. We all --
A I have a phone book downstairs that I could -- no, I will just read a couple of paragraphs that talk about interpreting and conducting epidemiologic research in general, not specifically related to this particular study -- set of studies that I describe in the book.
"The main purpose of epidemiology is to find the cause of disease. Despite some controversy concerning the validity of drawing causal inferences in epidemiology. There is a consensus that sanctions and provides guidelines for the practice. The evaluation of causality between a putative risk factor and disease is a complex and subjective process. Equally competent scientists examining the same information can arrive at different conclusions. However, as

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additional evidence is accumulated, beliefs and consensuses may change. The criteria that are most relevant to the problem of evaluating causality between cancer and an antecedent occupational exposure may be paraphrased as follows:
Number 1: "Is sampling variability a plausible explanation for the observed association?"
Number 2: "How strong is the association and is there a dose-response relationship?"
Number 3: "Is bias or confounding a plausible explanation for the observed association?"
Number 4: "Is the association biologically plausible?"
Number 5: "Is there relevant supporting evidence from other epidemiologic studies or from non-human test systems, such as animal experimentation or tests of mutagenicity?"
I'll stop there. But in answer to your question, this text, published 30 years ago now, encapsulates my approach to how to interpret and use epidemiologic evidence in assessing causality.

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Is that what you were --
Q That's what I wanted to know.
A -- asking?
Q Thank you. All right.
Now, do you recall, Dr. Siemiatycki, that you were asked some questions about the mechanism underlying exposure to talc and genital use of talcum powder products and ovarian cancer? Do you remember Ms. Branscome asked you some questions about that?
A The mechanism of exposure or the mechanism of carcinogenesis?
Q The mechanism of exposure --
A Okay.
Q -- between talcum powder products and ovarian cancer. Do you remember there were a series of questions that were asked about that?
MS. BRANSCOME: Object to form.
THE WITNESS: I'm -- I'm not --
BY MS. PARFITT:
Q Okay. Let me -- okay. Let me -- let me do this. Let me refer you to your report, if you will, and I believe it's been marked as -- I think this is 10 -- as 10.
Do you have your report in front of you?

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A Yes.
Q Very good. Okay.
All right. And specifically I'm referring to page 64 and 65.
A So I'm one or two pages off, so just tell me which section.
Q Okay. I believe it's -- it's under "Biological Plausibility." Do you see that in the lower part? Let's see.
A "Biological Plausibility" -- (reading to himself.) Strength. Okay. I've got it somewhere -- consistency. Here.
Q Okay.
A "Biological Plausibility," yes.
Q Now, I specific -- I believe specifically the question that you were asked is whether or not you will be testifying with regard to the mechanism and the biological mechanism for causing cancer with genital use of talcum powder products. Do you remember that?
A Yes.
Q Okay. Now, in the course of your analysis and in looking at that issue of biological mechanism for causing cancer, what did you consult and review and assess for purposes of

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formulating your opinions on that topic?
MS. BRANSCOME: Objection.
THE WITNESS: I actually started with the IARC 2006 report where there was a high level subgroup of toxicologists and basic scientists who reviewed the evidence. So I read that material.
I've read various articles concerning migration of particles, articles about inflammation as a carcinogenic process, oxidative stress as part of the carcinogenic process. And towards the end, started looking at articles about asbestos in talc as filling in some of the information about what the content of talcum powder products were. I at one point was looking at company documents to try to figure out what were the time relationships of using talc versus using substitutes for talc. So all of those kinds of things I was looking for.
BY MS. PARFITT:
Q So for purposes of evaluating the evidence and opining on the issue of talcum powder products and ovarian cancer, did you consider the issue of biological plausibility?
MS. BRANSCOME: Objection.
THE WITNESS: Yes, I considered it.

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BY MS. PARFITT:
Q All right. And what was the basis of your opinion as to whether or not there was biological plausibility between talcum powder product use in the genital area and ovarian cancer?
MS. BRANSCOME: Objection. Assumes he formed an opinion.
THE WITNESS: Well, my --
BY MS. PARFITT:
Q Dr. Siemiatycki, did you formulate an opinion with regard to whether there was biological plausibility between the use of talcum powder products and ovarian cancer?
A Yes, I did.
Q Okay.
A And the first part of the discussion is what one means by "plausibility." And so one issue that I took off the table quite soon is the notion that biological plausibility is synonymous with biological proof. Neither Bradford Hill nor anyone else who has described the use of biological plausibility as a criterion has ever claimed that biological proof of a mechanism is necessary before you can opine about the -- about

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causality.
So the bar for establishing plausibility for me is, are there credible scientists who are persuaded or have reasonable confidence that there is a mechanism that can explain the observation. And if so, I would defer to that point of view as being plausible.
I would not accept that one or more scientists developing a mechanistic theory are definitely proven, but if there is a credible point of view in the scientific community about the mechanism, I would call that plausible. It doesn't mean it's proven. It's plausible.
And to my satisfaction, when I looked at the different reports, including reports of experts in the litigations, I was reasonably assured that there are plausible theories and plausible hypotheses.
Q All right. In your section of your expert report on page 64 through 66, did the factors you identify under the subtitle "Biological Plausibility" provide support for your opinions that indeed there is biological plausibility between the use of genital use of talcum powder products and ovarian cancer?

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A I think they provide evidence of plausibility for those theories.
Q And did you consider those for purposes of opining that talcum powder products in the genital area, used, can cause ovarian cancer?
A Yes, I considered them.
Q All right. Dr. Siemiatycki, I'm not sure of the -- I don't think we marked it as an exhibit, so let me do that now. I believe we're up to 17.
(A discussion was held off the record.)
(Exhibit No. 17 was marked for identification.)
BY MS. PARFITT:
Q All right. Dr. Siemiatycki, do you recall the discussion you had with Ms. Branscome, again several hours ago, on the issue of confounding and how that can impact study designs?
A Oh, yes.
Q All right. Let me show you a document we have marked as Exhibit No. 17, and it's entitled "Degree of confounding bias related to smoking ethnic group, and socioeconomic status and estimates of the association between occupation and cancer," and I believe that's an article that

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you were an author, correct?
A That's correct, yes.
Q All right. What, if any, support did that particular article that you wrote, I guess back in 1988, provide, if any, for the opinions that you've rendered in this case on the topic of confounding and bias?
A In this study we evaluated 75 associations, 25 occupations in relation to lung cancer, to bladder cancer and to stomach cancer, each of them. And we looked at the association between each occupation and each of the three types of cancer, adjusting for the smoking history of the patients and the subjects. But another set of analyses not adjusting for their smoking histories, and their socioeconomic status and their ethnic group. These are factors that are strongly associated with cancer and with different occupations. We wanted to see how large a confounding bias could be generated by not having proper confounder information.
And so I will just read a couple of sentences from the abstract of this article.
"Of the 75 associations studied, only one OR was distorted by more than 40 percent. A

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40 percent distortion would correspond to an odds ratio of 1.4 when comparing unadjusted with adjusted estimates. Three were distorted by between 30 percent and 40 percent, and four others by between 20 percent and 30 percent."
So of these 75 associations, not taking account of very powerful confounders -- smoking is the most powerful confounder we know. Ethnicity and socioeconomic status are important confounders. They have strong relative risks with these different cancers. Not taking them into account could create artifactual odds ratios, maximum of 1.4, even though the original odds ratios of the confounders with these cancers could be as high as 10.
So there's a very -- the confounding effect, at most, would be 10 percent or 20 percent, but the likelihood that there is some unknown confounder with -- with ovarian cancer that is artifactually creating across the board, across all these studies, an artifactual relative risk of around 1.3 would require some -- that unknown confounder to have an extremely high relative risk, certainly higher than 2, maybe higher than 3 or 4, which is not inconceivable but

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low probability.
And this is part of what leads me and what led me in my report to opine that confounding is unlikely to be the explanation for the observed relative risks.
Q Thank you. All right.
THE VIDEOGRAPHER: Excuse me, Counsel.
MS. PARFITT: Off the record, yes.
THE VIDEOGRAPHER: Off the record?
MS. PARFITT: Yeah, it's a good time, because you're running out of tape. I could tell.
THE VIDEOGRAPHER: Going off the record at 8:27 p.m.
(Recess.)
THE VIDEOGRAPHER: We're going back on the record at 8:31 p.m.
MS. PARFITT: Thank you.
BY MS. PARFITT:
Q Dr. Siemiatycki, just one last question.
Let me direct your attention to again the documents in your Exhibit No. 4, specifically the "Weight of Evidence: General Principles and Current Applications at Health Canada," which formed part of the Health Canada recommendation. All right?

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A I'm not sure if it formed part of the recommendation or if it's a background document.
Q Very good. I think you're probably right.
All right. And you have -- you have had a chance to review that, correct?
A Yes.
Q All right. Specifically let me direct your attention to page 7 of that document. And I'm going to go down to the very last paragraph, and it starts with: "The majority of risk assessment reports, however, provide a logical narrative description of the relative strengths or weakness of various lines of evidence considered. For most risk assessments, individual lines of evidence are polled and integrated into a final conclusion based on best professional judgment and not mathematical formula."
Did I read that correctly?
A Yes, you did.
Q Do you agree with the statement by Health Canada in their "Weight of Evidence: General Principles"?
A Yes, I do.
MS. PARFITT: All right. I have no

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further questions. Thank you.
THE WITNESS: This is also in conformity with all guidelines from agencies and experts who understand science.
MS. PARFITT: Very good.
THE WITNESS: The best data is collected, compiled, and then interpreted by human expert judgment.
MS. PARFITT: Thank you very much, Dr. Siemiatycki. I believe counsel has some follow-up.
MS. BRANSCOME: I do, but I think I need to take a break to confer amongst ourselves.
MS. PARFITT: Go ahead.
THE VIDEOGRAPHER: We're going off the record at 8:33 p.m.
(Recess.)
THE VIDEOGRAPHER: We are going back on the record at 8:46 p.m.
REDIRECT EXAMINATION
BY MS. BRANSCOME:
Q Good evening, Dr. Siemiatycki.
I have some follow-up questions to the questions that were just asked to you by plaintiffs' counsel.

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Both myself and counsel for Imerys asked you very specifically if you had had contact with any of the authors in connection with the Taher paper or the Health Canada paper. Do you recall the questions that we asked you?
A I -- I recall that you asked questions about it, yes.
Q Yeah. Is there a reason why during my questioning and questioning by counsel for Imerys you did not recall having sent an e-mail to Dr. Krewski with respect to the potential publication of the Taher paper?
A I -- I guess I consider -- well, two parts. I consider a contact sort of a two-way process, and there was no two-way process. I sent him a message. He never responded.
And number two, it -- it dropped off of my memory screen. I -- I just forgot about it until she asked.
Q When did you contact Dr. Krewski about the Taher paper?
A In December, when I first learned about it.
Q What specifically did you ask him?
A My recollection, I asked him if -- the gist of it was whether the paper has been or will be submitted for publication. I don't recall if there were other important components. It was a brief message, besides pleasantries of people who've known each other for 30 years.
But, you know, I said I -- I've learned about this work that you were involved with. I can't remember what else I said.
Q In your e-mail communication to Dr. Krewski, did you alert him to the fact that you were serving as a -- an expert on behalf of plaintiffs' counsel in litigation involving talcum powder?
A I don't recall. Your question used the plural, and in my -- you said "in your communications." That's what I heard. No? Okay.
Q I meant it in the singular.
A You meant it in the singular, so I guess the record will reflect.
In my one message to Dr. Krewski -- let me -- if I may.
Q My question again, Dr. Siemiatycki --
A Yeah, please.
Q -- is in your e-mail to Dr. Krewski with respect to the Taher paper, did you notify him in

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that e-mail that you were serving as an expert witness retained on behalf of plaintiffs' counsel in litigation involving talcum powder?
A I -- I -- I don't recall if I did or not. I -- I wouldn't have thought it was a crucial thing to indicate in this first message asking him if his paper was in press or in publication or something like that.
Q Why did you want to know whether it had been submitted for publication?
A I wanted to know what the status of that report was. I had no -- I didn't follow up my -- it wasn't an important issue for me. I was -- it was kind of an idle gesture of, you know, Hi, I haven't heard from you for a while. I see that you have this thing. Are you sending it for publication? Something like that.
And I -- the motivation, was there a specific ulterior motive? No, there was no -- there was nothing I would have done differently. I guess if he had told me, yes, it's about to be submitted, I would have wanted to see the final version, because the version that I saw was obviously an early manuscript. It was much too long for a -- for a publication submission. But

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it wasn't a big deal for me to -- to have information about that manuscript.

Q Including communications in which you unilaterally reached out to individuals but may not have received a response, have you communicated in any form with any of the participants in the development of the Health Canada Draft Screening Assessment or the Taher paper, other than what we have discussed with respect to Dr. Krewski?

A No.

Q The Health Canada Draft Screening Assessment, you were asked a number of questions about that by counsel for plaintiffs. Is that a document that you have reviewed closely in forming your opinions in this case?

MS. PARFITT: Objection. Form.

THE WITNESS: I wouldn't say that I reviewed it closely the way I've reviewed the evidence before submitting my report. No.

BY MS. BRANSCOME:

Q All right. I want to talk to you about Exhibit 17. You have that over there. It's the "Degree of confounding bias related to smoking."

A Oh, yeah.

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Q All right. Dr. Siemiatycki, is Exhibit 17 an article that you identified to address the likelihood that a confounding variable could explain the increased risk that you have found in your meta-analysis with respect to the use of talc?

A Yes.

Q Okay. So I just want to direct you to page 623. In the right-hand column, do you see a paragraph that begins "One of the criteria"?

A Yes.

Q Does it state: "One of the criteria used by epidemiologists to distinguish true from false associations is the strength of the association"? Did I read that correctly?

A Yes, you did.

Q And again, this is an article on which you are the lead author, correct?

A Correct.

Q It continues on: "That is, among two relative risk assessments which have equal levels of statistical significance but one of which is much greater than 1, while the other is closer to 1, the larger one is considered more likely to reflect a true association than the smaller one."

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Did I read that correctly?

MS. PARFITT: Counsel, just with one correction. It came out as "estimates." The article says "estimates," and it came out on the transcript as "assessments."

MS. BRANSCOME: Okay.

THE WITNESS: That -- do you understand what she's indicated?

BY MS. BRANSCOME:

Q Yes. Did I read it correctly?

A You misread one word.

Q Okay.

A But it's not important, but if you want to have it for the record.

Q Well, we can continue on.

A Yes.

Q "This consideration follows from the recognition that some degree of bias is quite likely in any non-experimental study."

Did I read that correctly?

A Yes.

Q "Small excess relative risks, even if they are statistically significant, are often interpreted with great caution, if not skepticism."

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Did I read that correctly?

A Yes.

Q "Although there has been no explicit consensus on what level of excess relative risk should be considered too small to be taken seriously, we believe that many epidemiologists use a cut point in the range of 1.2 to 1.5 for this purpose. Our results indicate that a cut point in this range is reasonable for studies of cancer occupation associations."

Did I read that correctly?

A Yes, you did.

Q And the references in those sentences to the words "we" and "our" would include you, Dr. Siemiatycki, correct?

A Correct.

Q And then if we could turn the page to page 624, the paragraph at the top on the left-hand column, I direct your attention to the last complete sentence of that paragraph.

"On the other hand, our results also imply that relative risk estimates as low as 1.2 for lung cancer associations or 1.1 for bladder or stomach cancer associations run a fair chance of being attributable to confounding bias, even if

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they are," quote, "statistically significant."
Did I read that correctly?
A Yes, you did.
Q Is that a conclusion that you and your authors reached in the paper that's been identified as Exhibit 17?
A Yes, it was.
Q Your opinion with respect to the existence of biological plausibility of the perineal use of talc and ovarian cancer is limited to the evaluation of whether or not there are credible scientists who are persuaded that there is a mechanism; is that correct?
MS. PARFITT: Objection. Form.
THE WITNESS: Can you repeat that? I'm sorry.
BY MS. BRANSCOME:
Q Your opinion with respect to the existence of biological plausibility of the perineal use of talc and its potential to cause ovarian cancer is limited to an evaluation of whether or not there are credible scientists who are persuaded that there is a mechanism, correct?
MS. PARFITT: Objection. Form. Misstates his testimony.

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THE WITNESS: I would say is based on, rather than is limited to.
BY MS. BRANSCOME:
Q Do you have expertise that would allow you to determine what the most likely biological mechanism is, if there is one, for perineal use of talc to cause ovarian cancer?
A No, I wouldn't pretend to -- to have that kind of expertise.
Q Okay. Is it also true that you are not qualified to opine on the ability or not of talc particles to migrate to the ovaries from the use, the perineal application of talc?
MS. PARFITT: Objection. Form.
THE WITNESS: Not on the basis of my research, not on the basis of my training, but on the basis of my reading of literature concerning that issue, I have an opinion based on what I've read from experts in the -- that field.
BY MS. BRANSCOME:
Q But in forming that opinion, you are relying on --
A Yes.
Q -- the expertise of others, correct?
A Yes.

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MS. PARFITT: Object to form.
THE WITNESS: Correct.
BY MS. BRANSCOME:
Q You indicated in response to questions by plaintiffs' counsel that you were persuaded by the opinions of other experts in the litigation with respect to biological plausibility. Who are those experts?
A I -- I think I indicated that such experts contributed to the information that I had, not that they were the only ones who persuaded me. So there was literature and there were depositions and reports.
So -- I'm trying to remember the names of the various expert reports that I have read and depositions. I do -- there's the Plunkett, the Saed papers, but I don't know if there was a report by Saed. There was -- let me look in my list of references. (Peruses document.)
I'm sorry, I'm drawing a blank on the names of the people whose reports and testimonies I've read in the last month or two.
Q When were you provided with copies of these expert reports?
A In the fall. Some before November 15th

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and some after November 15th. And -- but also I'm -- I'm reflecting on the various reports and testimonies from the earlier trial, and I read various expert reports from that time.
Q Did you draft the section in your MDL expert report related to biologic plausibility?
A Yes, I did.
Q You personally summarized each of the various studies that you refer to in that section?
A What do you mean by summarized the studies? I -- I summarized the evidence that's captured there, and I provided references for those statements, yes.
Q You're the original author of the language in that section is my question.
A Yes. Yes.
Q Can you identify for me which expert reports related to biological plausibility you had reviewed before forming your opinion as represented in the MDL report?
A As I said, it's partly a number of reports that I had seen in the previous trial, and I -- I'm drawing a blank on the names of -- of the people.
Q You understand that there will be

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experts retained by defense counsel who will provide reports addressing biological plausibility, correct?
A I assume so, yeah.
Q Okay. Are you qualified to evaluate between competing expert reports who is correct about the biological mechanism?
MS. PARFITT: Objection. Form.
BY MS. BRANSCOME:
Q To the extent one exists.
MS. PARFITT: Objection. Form.
THE WITNESS: No -- no, I wouldn't be. I mean I -- I can read reports from people outside my area and form an opinion about the general coherence and -- and form an initial sense of the credibility of the various reports. And I'd be happy to review the reports of the experts for the defense on these issues.
BY MS. BRANSCOME:
Q But to the extent, for example, that there are credible experts on both sides of the debate, whether or not there has been an established biological mechanism and whether or not there have not been, you are not qualified to evaluate between the two credible experts?

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MS. PARFITT: Objection. Form.
THE WITNESS: That's correct. And I've never pretended that -- make -- that it is necessary for me to establish the correct biological mechanism before drawing inferences about causality.
BY MS. BRANSCOME:
Q It is your conclusion that more likely than not perineal use of talc can cause ovarian cancer is based on the epidemiological evidence, correct?
MS. PARFITT: Objection. Misstates his evidence and testimony today.
THE WITNESS: In part -- in large part. Yes.
BY MS. BRANSCOME:
Q Okay. Well, my question now is about the, in small part, the evidence in addition to that. What evidence are you considering that you are qualified to independently evaluate?
A I am qualified to evaluate whether there is a plausible theory about it. Not to establish whether that theory is correct or not.
MS. BRANSCOME: Okay. All right. If we could just go off the record very briefly.

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THE VIDEOGRAPHER: We are going off the record at 9:05 p.m.
(Pause in the proceedings.)
THE VIDEOGRAPHER: We're back on the record at 9:06 p.m.
MS. BRANSCOME: At this time I will pass questioning to counsel for Imerys.
MS. PARFITT: Thank you.
REDIRECT EXAMINATION
BY MR. KLATT:
Q Dr. Siemiatycki, a few more questions, sir.
I'm going to read a statement and ask if you agree with it. Okay?
A Yes.
Q "When a pronounced binary association is present, use of the never or no category in assessing trend can induce a trend where none exists."
A Okay. Can you -- yeah, thank you.
Q And my question is, do you agree or disagree with that statement?
A Yes, I agree it can -- I agree with it. There are some qualifiers that I would add to that sentence, but I agree with it.

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Q Could you look at your report, please, sir, in the case on page 65, the discussion of biologic plausibility.
A Yes.
Q And actually I think your biologic plausibility discussion actually begins near the bottom of the previous page, 64, and there's a general discussion on the rest of 64 and the first paragraph or two of 65. Is that correct?
A I -- I believe it's correct. The version I have in front of me is that version that has a slightly different formatting, so -- but I'm with you.
Q Okay.
MS. PARFITT: And I believe, just for completeness, it starts on 60 --
THE WITNESS: Mine starts on --
MS. PARFITT: His document starts on 65, goes all the way over to 66. Mike, yours probably starts on the bottom of 64, goes all the way over to the top of 66.
BY MR. KLATT:
Q And what I'm focusing on is the paragraph that you wrote that begins with "Insofar" --

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A Yes.
Q -- which is where your specific discussion of biologic plausibility regarding talcum powder products begins.
A Yes.
Q Do you -- do you see that paragraph, sir?
A Yes, I do.
Q And moving down, did you read the articles that you cited here carefully?
A I read them. I'm not capable of fully understanding articles in areas that are outside my area of -- of expertise. But to the --
Q Well --
MS. PARFITT: Wait, let him finish.
THE WITNESS: To the extent that I was able to understand them, I read these articles.
BY MR. KLATT:
Q I'm focusing on the sentence that you wrote in your report saying: "First of all, there are two possible routes that talcum powder products can take to reach the ovaries."
Do you see where I am?
A Yes, I do.
Q The next sentence says: "There is

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published evidence that talcum powder products and its constituents and contaminants that are applied to the vaginal area can migrate from there to the fallopian tubes and ovaries," citing Venter 1979, Henderson 1986, Heller 1996, "or to pelvic lymph nodes," citing Cramer 2007.
Is that correct?
A Yes, that's correct.
Q Do you recall, Dr. Siemiatycki, that the Venter 1979 article has nothing to do with talc at all?
MS. PARFITT: Objection. Form.
THE WITNESS: Is that the article about asbestos?
BY MR. KLATT:
Q Venter 1979 is the article about albumin microspheres.
A Oh, yeah. Yes.
Q Do you recall that article?
A I do. Well, I don't recall it well, but I recall reading it a year or two ago.
Q And in Venter, nothing was applied to the perineal area, correct? These albumin microspheres were actually injected at the top of the vaginal vault, correct?

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A I think so. Is this --
Q And the --
A Is this the South African study?
Q I believe you're right.
A Okay.
Q And the women were not women using perineal talc. They were women who were being prepared to undergo gynecologic surgery, correct?
A Correct.
Q And after this solution of albumin microspheres was injected at the top of the vaginal vault, the women were tilted in a head down/pelvis up position for two hours beforehand, correct?
A Correct.
Q So --
A Now I'm saying correct, but I don't remember the details that you're quoting. I remember the article. I'm -- I -- it doesn't -- my recollection doesn't contradict anything you're saying.
Q So Venter doesn't tell us anything at all about dry talc particles applied externally to the genital area being able to migrate up the vagina, across the cervix, up the uterus, up the

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fallopian tubes to the ovaries, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: I guess I use this as a reference because some other experts used it as a reference for such a statement. And I read the article, and it sounded plausible.
BY MR. KLATT:
Q But you'd agree with me that the Venter 1979 article doesn't involve talc particles, doesn't involve external application, and is a very artificial situation compared to the situation of women applying talc to the --
MS. PARFITT: Objection.
BY MR. KLATT:
Q -- external genital area?
MS. PARFITT: I'm sorry, Michael. Objection. Form.
THE WITNESS: I -- I -- I don't disagree with what you said.
BY MR. KLATT:
Q And then the other two articles you cite, Henderson 1986 and Heller 1996, say nothing at all about migration of talc particles. They simply observe talc particles in tissue already without any reference to how they got there,

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correct?
MS. PARFITT: Do you need to see the articles?
THE WITNESS: Yes, I think I need to see those articles.
MS. PARFITT: Do we have Henderson or Heller?
MR. KLATT: I'm sorry, I don't have them with me.
MS. PARFITT: Okay. Let's see. In your report -- they're in your report.
BY MR. KLATT:
Q And you might want to pull Cramer 2007 while you're at it, because again my question is the same, it doesn't say anything at all about migration. It simply identifies particles already in tissue without saying how they got there.
MS. PARFITT: Okay. Well, let's wait for a question and let's get the articles. Let's see. It would be tab -- it's a big binder.
BY MR. KLATT:
Q Can I -- can I --
THE WITNESS: I have it in my office.
BY MR. KLATT:
Q Can I short-circuit this?

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A Yes.
Q I think this -- I can short-circuit this. If you just look at Cramer 2007. Do you have that handy?
MS. PARFITT: Cramer 2007. Do you have it? I don't, Michael.
THE WITNESS: It would be in my office.
MR. KLATT: Could we go off for a second while you are looking?
THE VIDEOGRAPHER: We're going off the record at 9:15 p.m.
(Pause in the proceedings.)
THE VIDEOGRAPHER: We are back on the record at 9:17 p.m.
BY MR. KLATT:
Q So, Dr. Siemiatycki, at my request, you've pulled the 2007 article, first author Cramer, called "Presence of talc in pelvic lymph nodes of a woman with ovarian cancer and long-term genital exposure to cosmetic talc," correct?
A That's correct.
Q And my question was simply, this -- this article says nothing about talc migrating. It simply observes that talc was found in a lymph node. Is that correct?

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MS. PARFITT: Objection. Form.
Make sure you've read the article.
THE WITNESS: (Peruses document.) So I -- I've skimmed it quickly. I haven't read everything, but I don't see that it -- sorry, are we on?
MS. PARFITT: Yes.
THE VIDEOGRAPHER: We're on the record.
THE WITNESS: I don't see that it directly addresses talc moving from the vagina into pelvic lymph nodes, but it certainly concerns the detection of talc in pelvic lymph nodes.
BY MR. KLATT:
Q But it says nothing in the article itself about establishing migration, correct?
MS. PARFITT: Objection. Misstates his testimony.
BY MR. KLATT:
Q That you -- that you see.
MS. PARFITT: Objection. Form, misstates his testimony.
THE WITNESS: I -- I guess, you know -- the question I would have is if it gets to the pelvic lymph nodes, it has to migrate there from somewhere. It's not deposited there deliberately.

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BY MR. KLATT:
Q Well --
A That was my interpretation of -- of this.
Q Well, look at the very first page of this article, Cramer. You see at the very top under where the authors are listed?
A Yes, I do.
Q It says "Background"?
A Yeah.
Q "Although epidemiologic studies suggest talc use may increase ovarian cancer risk, there is no proof that talc used externally reaches the pelvis." Correct?
MS. PARFITT: Objection. Form.
BY MR. KLATT:
Q That's what it says.
A That's the background to this study. That's not --
Q And it's 2007, correct?
A Correct.
Q Which is after the Henderson study that you cite. Correct?
A Correct.
Q And so after -- and what -- so we have

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Venter that you cited and Henderson, and what else?
A Heller -- Heller?
Q What was the third? Heller, yes. Thank you. 1995. And here is --
MS. PARFITT: No, excuse me. 1996, I believe.
BY MR. KLATT:
Q Excuse me, 1996.
And here in 2007, we have Dr. Cramer saying that there's no proof that externally applied talc reaches the ovaries, correct?
MS. PARFITT: Objection. Misstates the science and the article and his testimony. Form.
BY MR. KLATT:
Q I'm just asking what the article -- what Dr. Cramer and Dr. Godleski said in the Background section to this article that you cite in 2007.
MS. PARFITT: Objection. Form.
THE WITNESS: You want me to comment on whether their background -- the Background section of this abstract contradicts the thesis that there was evidence of migration before 2007? Is that correct?
BY MR. KLATT:

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Q I'm -- my question is, you cited Venter and Henderson and Heller for evidence of migration, correct?
A Right. Right.
Q And those all predate well before 2007, correct?
A Correct.
Q And here we have Dr. Cramer saying in 2007 there is no proof that talc used externally reaches the pelvis, correct?
MS. PARFITT: Objection. Form, misstates the article.
BY MR. KLATT:
Q Is that what he said?
A That's what it says.
Q And you --
MS. PARFITT: Wait. Wait. Wait. Wait, you let him finish. He said, That's what he said -- finish, please. Thank you, Michael.
THE WITNESS: The -- the word "proof" in that sentence is a red flag. I'm not sure what they mean -- they meant by proof. They might have -- well have said, There is evidence that, but it is not yet conclusive. That is one interpretation of a sentence like, There is no

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proof. They haven't -- they didn't say there is no evidence. They said, There is no proof.
BY MR. KLATT:
Q Do you understand -- my question, Dr. Siemiatycki, was simply, did Dr. Cramer say there was no proof? Correct?
MS. PARFITT: Objection.
THE WITNESS: He said there was no proof.
MS. PARFITT: Asked and answered.
THE WITNESS: He didn't say there was no evidence.
BY MR. KLATT:
Q Okay. Can you go back -- let's see, let's go back to your expert report on biologic plausibility.
MS. PARFITT: Right here.
BY MR. KLATT:
Q Oh, one other thing. When you were just scanning Cramer 2007, I saw you were looking on the page where he discussed the Heller paper. Did you see that?
MS. PARFITT: Just give him a moment to get that again. I think it was 17.
THE WITNESS: Sorry. No. 17?

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MS. PARFITT: Yeah.
THE WITNESS: You have very good eyes if you saw me looking at the Heller. I actually wasn't, but --
BY MR. KLATT:
Q I thought you were on that page.
A Well, I was -- I scanned each of the four pages. There aren't that many pages. The -- I see mention of the Heller article.
Q On page 500?
A Yes, I do see that.
Q Do you see where Dr. Cramer in 2007 is suggesting that the explanation for the Heller study may be contamination that was introduced during the processing of the tissue specimens?
A So I see that he says it might have been introduced during processing, and it's a potential weakness. He doesn't affirm that it is. He says it might be.
Q So contamination is another explanation potentially for why you might find talc in ovarian or gynecologic tissues?
MS. PARFITT: Objection. Form.
THE WITNESS: I -- I guess so. Not being an expert in pathology and physiology, I --

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that seems like a plausible -- seems to me like a plausible alternative explanation.
BY MR. KLATT:
Q You go on and comment in the next paragraph of your biologic plausibility on two trace heavy metals, chromium and nickel compounds, correct?
A So where are we -- oh, yeah. Yes.
Q You're aware that IARC has made determinations regarding chromium and nickel compounds, correct?
A Yes, correct.
Q And neither one of the determinations found they were linked to ovarian cancer at all, correct?
A That's correct.
Q They found they were related to nasal, sinus and lung cancers in people, primarily workers, who had breathed the fumes, correct?
A That's correct.
Q So that's no way analogous to any trace heavy metals in talc, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: It's -- it's not directly relevant. It may be indirectly relevant. The

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evidence that allowed IARC to make determinations about lung cancer risks is evidence from industrial cohorts of males.
And so there has never been an evaluation of ovarian cancer risks in relation to exposed women to chromium and nickel. It's terra incognita basically.
BY MR. KLATT:
Q And so following up on that, you're not aware of any evidence at all that women who have used externally applied talcum powder to the genital area have higher blood or tissue levels of chromium or nickel compounds than women who've never ever used talc at all, correct?
MS. PARFITT: Objection. Form.
THE WITNESS: I've -- I'm not aware of any evidence.
MR. KLATT: I think that's all the questions I have.
MS. PARFITT: I have no further questions.
Dr. Siemiatycki, you are done. We will read and sign.
Thank you, Leslie.
Thank you all.

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THE VIDEOGRAPHER: This ends -- this ends the deposition of Jack Siemiatycki.
We are going off the record at 9:28 p.m.
(Whereupon, the deposition of JACK SIEMIATYCKI, Ph.D. was concluded at 9:28 p.m.)

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CERTIFICATE OF CERTIFIED SHORTHAND REPORTER
The undersigned Certified Shorthand Reporter does hereby certify:
That the foregoing proceeding was taken before me at the time and place therein set forth, at which time the witness was duly sworn; That the testimony of the witness and all objections made at the time of the examination were recorded stenographically by me and were thereafter transcribed, said transcript being a true and correct copy of my shorthand notes thereof; That the dismantling of the original transcript will void the reporter's certificate.
In witness thereof, I have subscribed my name this date: February 4, 2019.

_____
LESLIE A. TODD, CSR, RPR
Certificate No. 5129

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ACKNOWLEDGMENT OF DEPONENT

I,_____, do hereby certify that I have read the foregoing pages, and that the same is a correct transcription of the answers given by me to the questions therein propounded, except for the corrections or changes in form or substance, if any, noted in the attached Errata Sheet.

_____

JACK SIEMIATYCKI, Ph.D. DATE

Subscribed and sworn to before me this

_____day of_____,20___.

My commission expires:_____

_____

Notary Public